BC Hydro
Annual
Report
1983 84

85-3899/

Contents

1 Highlights
1 Business of B.C. Hydro
2 Report of the Directors
4 Review of Operations
4 Electrical Operations
8 Gas Operations
9 Railway Operations
10 Business Development
10 Rates
10 Exports of Electricity
11 Natural Gas Vehicles
11 Incentives to Industry
12 Energy Management
13 Engineering
13 Construction
14 Planning
14 Research and Development
15 Public Communication
15 Employees
16 Financial Report
16 Financial Review*
24 Financial Statements
36 Corporate Organization
Inside Back Corporate Information

* *The Financial Review contains additional detail about the results of operations.*

COVER:
Workmen on platform are dwarfed by the concrete mass of Revelstoke Dam on the Columbia River.

RIGHT:
North Coast transmission crew uses "hot line" techniques to replace crossarms on a 138 kV circuit.

British Columbia Cataloguing in Publication Data

British Columbia Hydro and Power Authority.

Annual Report. — 1st(1962/63)-13th(1974/75); 1975/76-

Report year ends March 31.

ISSN 0521-0577 = Annual report — British Columbia Hydro and Power Authority

1. British Columbia Hydro and Power Authority.

HD2768.C35B73 354.711'008'72

Highlights

for the years ended March 31

	1984	1983	1982
FINANCIAL		*(in millions)*	
Revenues	**$1,613**	$1,528	$1,473
Net income (loss)	**$ 51**	$ (19)	$ 120
Additions to fixed assets in service	**$ 480**	$ 374	$ 501
Total assets	**$9,593**	$8,910	$8,387
OPERATING			
Electricity sold (millions of kW·h)			
Domestic and other	**29 069**	28 640	28 964
Export surplus	**2 834**	3 623	6 315
Gas sold (terajoules)	**89 525**	85 969	96 247
Freight carried (thousands of tonnes)	**2 005**	1 784	2 383

Business of B.C. Hydro

British Columbia Hydro and Power Authority, a provincial Crown corporation, is the third largest electric utility in Canada and the largest distributor of natural gas in British Columbia. Its Board of Directors, appointed by the Lieutenant Governor in Council, has overall responsibility for management of the corporation.

Hydro generates, transmits and distributes electricity to more than one million customers in a service area which contains more than 90% of British Columbia's population. Most of the electricity is generated by hydroelectric plants and carried to customers by an interconnected system of transmission lines. Remote communities not connected to this system are served by small local generating plants.

Hydro distributes natural gas in Greater Vancouver and the Fraser Valley and propane-air gas in Greater Victoria.

Hydro also operates a railway offering local and terminal freight service in Greater Vancouver and the Fraser Valley.

Hydro's electric and gas services are subject to regulation by the British Columbia Utilities Commission.

Hydro's corporate purpose is to satisfy energy needs in British Columbia. Its corporate objective is to supply electricity and gas at the lowest long-term price to British Columbia customers.

Report of the Directors

Total revenues reached an all-time high of $1,613 million, compared with the previous high of $1,528 million set in 1982-83. Revenues from sales of electricity were $1,230 million, up 5% from the previous year. Gas sales revenues increased by 9% to $361 million. Revenues from rail freight operations were approximately the same as the previous year at $22 million.

New provincial government policy allowing exports of surplus firm hydroelectric energy made possible a sales agreement with four Southern California cities which could bring Hydro revenues of up to (U.S.) $200 million over the three years ending October 1986. These sales represent about 50% of the projected surplus of firm hydroelectric energy in the next three years. Revenue from export sales reduces the amount which has to be collected from customers in British Columbia, thus holding down domestic rates.

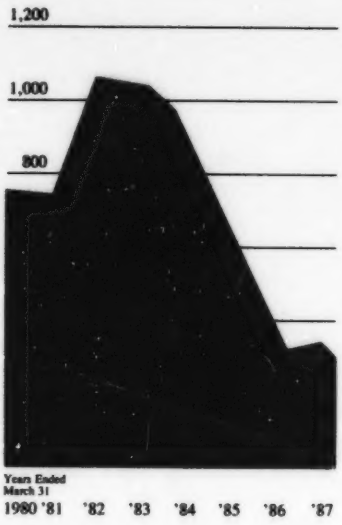
Net income was $51 million reflecting an operating income for the year of $37 million before contribution from the rate stabilization account. Operating expenses rose, chiefly because of increases in finance charges and unusually high depreciation expense resulting from inclusion of write-offs of deferred projects. Only about one-fifth of total operating expenses can be controlled by Hydro management in the short term once plant is committed, and these expenses in fact declined during the year. Since July 1982 staff has been reduced by approximately 2000. At the same time the number of customers continued to grow. At year-end the total number of electricity and gas accounts was 1 478 140 representing an increase of 33 830 during the 12-month period.

Economic conditions which have resulted in a scaling-down of Hydro's operations and activities affected the contribution Hydro makes to the provincial economy in terms of job creation and purchases of materials and services.

To cope with economic uncertainty Hydro is taking a new approach to electric load forecasting and in its planning for new sources of electric energy. This includes an energy planning range in Hydro's long-range electric load growth forecast which requires greater flexibility in the electric system plan which flows from the forecast. The planning range adopted for the current electric growth forecast anticipates a restrained recovery.

Hydro's planned expenditures on fixed assets have been reduced substantially as a result of an overall lower load forecast and a change in Hydro's generation planning criteria. The change permits planning of traditional, firm electric generating resources for a demand level at the low end of the energy planning range. If requirements turn out to be higher, the difference would be made up by less assured resources such as possible purchases of electricity, or firm project schedule acceleration, or both. The

Fixed Asset Expenditures
($ millions)



Peace Site C hydroelectric project has been postponed and, following completion of the Revelstoke project this year, no major new generation facilities are planned to come into service during the next decade.

Despite a significant reduction in estimated borrowing requirements from last year, Hydro has a continuing requirement for capital and consequently, current high interest rates are of particular concern.

Board committees were very active during the year, particularly the Budget Committee, which examines planning and forecasting and reviews actual performance against budgets and estimates. Other committees are the Audit Committee, which deals with corporate affairs and financial statements; the Energy Committee, which reviews the gas and electric system plans, and the Executive Compensation Committee, which advises on the setting of managerial salaries.

As a result of current economic conditions, Hydro is at a transitional stage, changing its corporate emphasis to reflect the declining rate of growth in customer demand. Over the next three years increasing emphasis will be placed on marketing and cost reduction. These changes in emphasis, which are seen as being of fundamental assistance to economic recovery in the province, resulted in a corporate reorganization which took effect shortly after the end of fiscal 1983-84.

A number of other significant developments also occurred after the end of the year under review and are worthy of note at this time:

- The first two units at the Revelstoke project began generating electricity;
- The Cathedral Square project was placed in service;
- An interim electric rate increase of 6.5% was granted effective April 15, 1984, subject to conditions;
- New appointments were made to Hydro's Board of Directors.

The Directors acknowledge the extra efforts made by so many Hydro employees under the special stresses of organizational retrenchment and an 11-week strike.

The Directors commend all employees for their evident dedication to the corporation and to the public since the resumption of normal activities.

On behalf of the Board

Robert W. Bonner
Chairman

Review of Operations

Electrical Operations

Total revenues from electric service increased 5% from the previous year to $1,230 million, mainly as a result of a 6% rate increase effective April 1, 1983. Revenues from domestic sales rose while revenues from export sales were down.

Sales to large industrial customers in B.C. resulted in revenues of $239 million. It is estimated that $25 million in revenue was lost as a result of a 10-week shutdown of the pulp and paper industry which arose from a labour dispute.

The highest one-hour peak demand ever recorded on the integrated system — 6 215 000 kW — occurred on December 21, 1983, exceeding by about 5% the previous record of 5 902 000 kW set on January 6, 1982.

There was an increase of 23 842 electricity customers during the year, bringing the total number served at March 31, 1984, to 1 126 284.

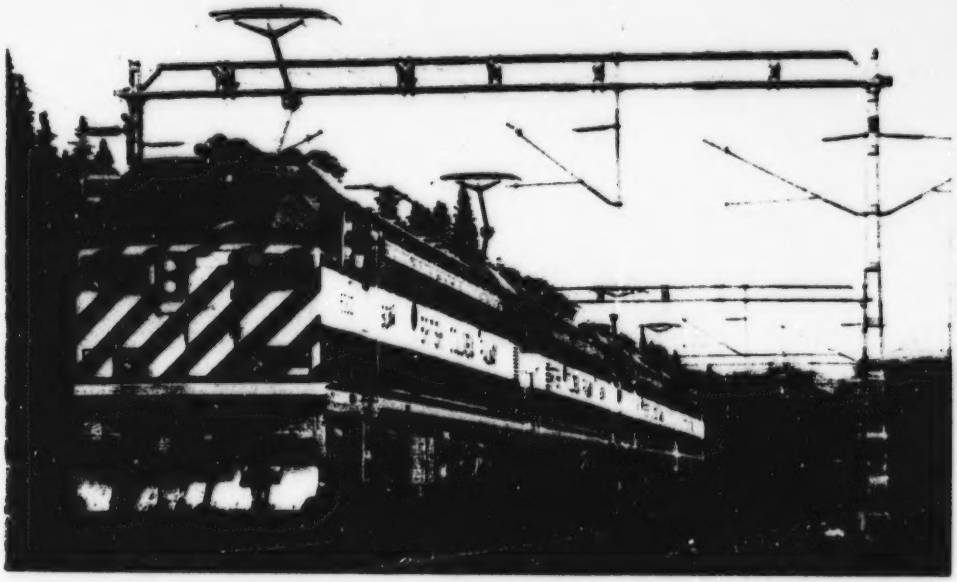
As a result of reviews of customer service requirements, activities in a number of areas were consolidated and costs reduced. In the Lower Mainland, the Haney office was combined with the Coquitlam area operation. In the North Coast region, the Kitimat and Terrace district operations were merged, and in the South Interior, the Kimberley and Cranbrook districts were amalgamated.

Severe rain and wind storms in late December 1983 caused widespread interruptions of service in the Lower Mainland, South Interior and Vancouver Island regions, but by an exceptional effort Hydro employees were able to get services restored very quickly.

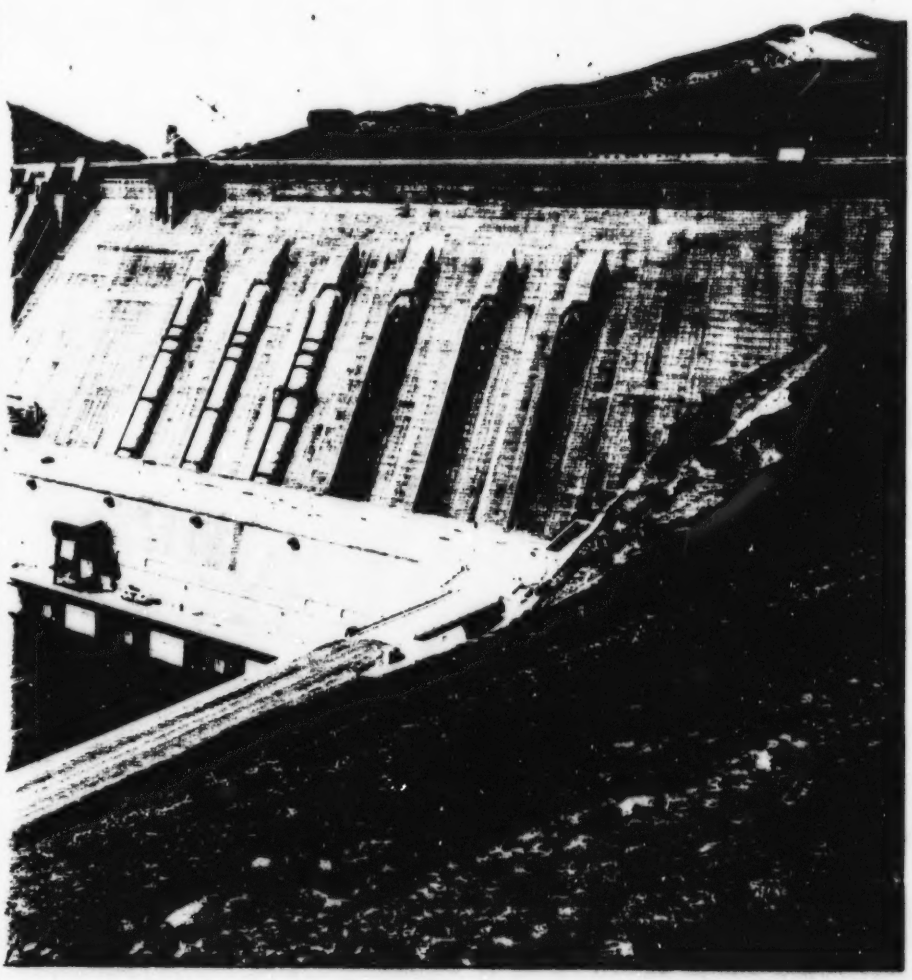
Although runoff into Hydro's reservoirs during the year was below average, it was more than adequate to

Recreational developments at hydroelectric reservoirs attract thousands of people each year.

Revelstoke hydroelectric project.



Hydro supplies power to the electrified B.C. Railway line serving the northeast coal project at Tumbler Ridge.



refill them as well as provide for requirements of customers in B.C. and surplus sales to customers in the U.S. and Alberta. Use of the gas-fired Burrard thermal plant near Vancouver was limited to providing system security.

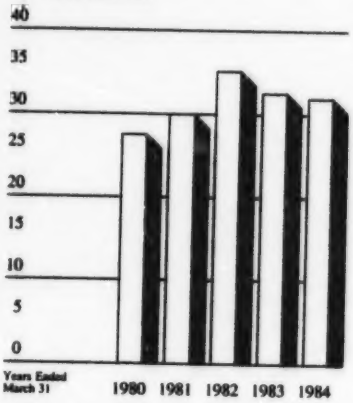
Hydro has concluded an agreement with the U.S. Department of Energy, acting through Bonneville Power Administration (BPA), to share the costs and responsibilities associated with initial filling of the Revelstoke reservoir, and to enhance operation of Columbia River storage in Canada. The agreement also provides both Hydro and BPA with additional flexibility and other benefits in operation of their systems.

Approximately 340 000 people visited Hydro reservoir areas for recreational purposes during the year.

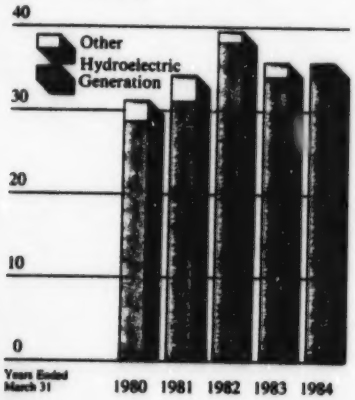
The number of Rural Electrification Assistance projects approved during the year was the highest in the program's history. A total of 151 distribution extension projects was approved to serve 534 customers along 531 km of lines, including large projects in the Burns Lake, Fort St. John and Willia ns Lake districts.

New transmission rate connections included rail electrification for the northeast coal project at Tumbler Ridge, a pipeline load at Kamloops, and a new customer-owned substation constructed to allow for increased load at Roberts Bank in Delta. Important operating loads also were added at the northeast coal

Sales of Electricity
(kW·h in billions)



Sources of Electricity Supply
(kW·h in billions)



terminal at Prince Rupert and at a mine at Tumbler Ridge.

A net total of 158 km of transmission lines and 715 km of distribution lines was added to the electric system, as was 3 500 000 kV·A of substation capacity.

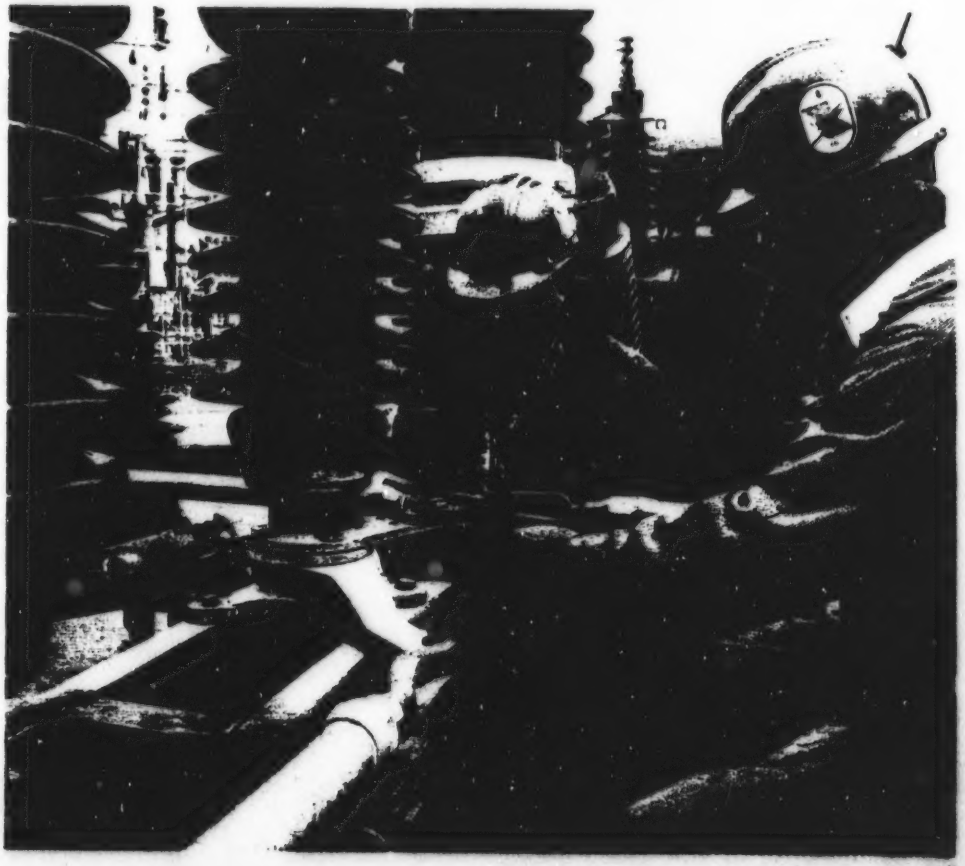
Total requirements for electricity and sources of supply during the past year were:

	kW·h in millions	% of total
Requirements		
Domestic and other	29 069	81.7
Export surplus	2 834	8.0
Line loss and system use	3 667	10.3
	35 570	100.0
Sources of supply		
Hydroelectric generation		
Gordon M. Shrum	11 628	32.7
Mica	7 412	20.8
Peace Canyon	3 293	9.3
Kootenay Canal	3 145	8.9
Seven Mile	2 538	7.1
Other	7 362	20.7
Thermal generation		
Burrard	6	—
Other	144	0.4
Purchases and other transactions	42	0.1
	35 570	100.0

There were no major additions to Hydro's generating capacity during the year ended March 31, 1984. The total generating nameplate capacity of Hydro's plants at year-end, following retirement of the 75 500 kW Georgia gas turbine generating station on Vancouver Island, was as follows:

	Generating nameplate capacity (kW in thousands)
Hydroelectric plants	
Gordon M. Shrum	2416
Mica	1736
Peace Canyon	700
Seven Mile	608
Kootenay Canal	529
Bridge River	428
Other	1072
Total hydroelectric	7489
Thermal plants	
Burrard	912
Gas turbine (3 plants)	246
Diesel	113
Total thermal	1271
Total generating capacity	8760

More than 2000 Boy Scouts helped Hydro to reclaim land near the rebuilt Alouette Dam east of Vancouver by planting 12 000 trees.



A six-week shutdown of part of MacMillan Bloedel's Harmac plant near Nanaimo was averted in the spring of 1984 when Hydro installed a multi-voltage mobile transformer. Electricians George Potts and John McMillan hooked up the transformer after one of the plant's main generators experienced problems.

Gas Operations

Total revenues from gas services were $361 million, up 9% from the previous year. Gas sales increased 4% to 89 525 terajoules.* On December 23, 1983, the natural gas distribution system sent out a record 24-hour volume of 610 terajoules, surpassing the previous peak of 586 terajoules set on January 5, 1982, by 4%.

The total number of gas customers at March 31, 1984, was 351 856, an increase of 3% over the prior year. Of new natural gas customers, 44% formerly used oil. Hydro continued to administer the Canada Oil Substitution Program (COSP) for customers in its service areas. The program provides federal grants of 50% of the cost of converting from oil to either natural gas or electricity up to a maximum of $800 for each residential, commercial or industrial customer, and up to $5,500 for multi-residential buildings. By March 31, 1984, 25 392 Hydro customers had benefitted from the COSP grant. Approximately 90% of these converted to natural gas while the others converted to electricity.

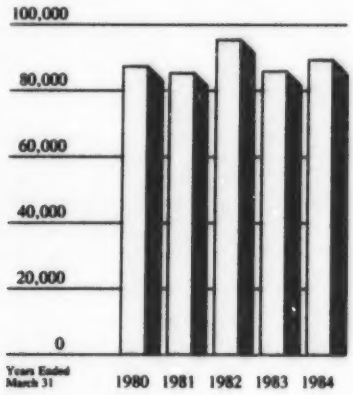
Hydro is seeking approval to build and operate an underwater natural gas transmission pipeline from the Lower Mainland to Vancouver Island and the associated transmission and distribution facilities on the Island. At year-end, the B.C. Utilities Commission hearings on the matter were continuing.

The underground gas storage agreement reached between Hydro and Washington Water Power Company of Spokane, Washington, in 1982 was approved by the Canadian federal government in July 1983. Under the agreement Hydro may inject gas into the Jackson Prairie underground gas storage project near Chehalis, Washington, during the summer and recover it during periods of high demand to reduce peak requirements. Withdrawals of gas under the agreement took place during 17 days in December 1983, resulting in net savings to Hydro in costs of purchasing gas from its supplier.

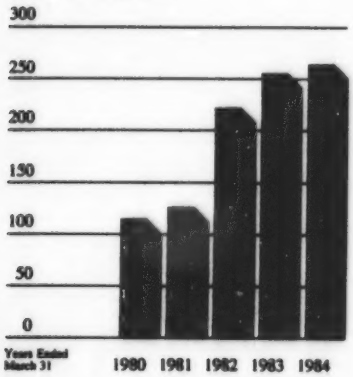
Under the Distribution System

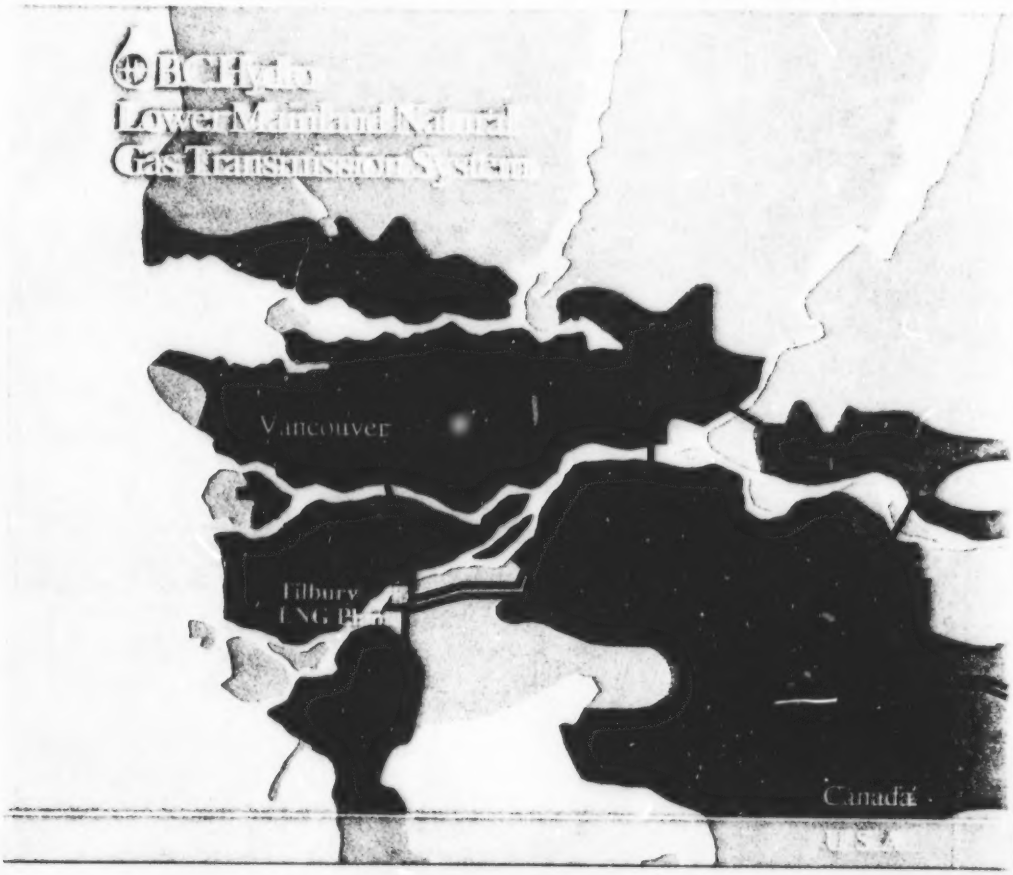
** The joule is the standard unit of heat content used in metric measurement. A gigajoule is 1 000 000 000 (one billion) joules; a terajoule is 1 000 000 000 000 (one trillion) joules.*

Sales of Gas
(Terajoules)

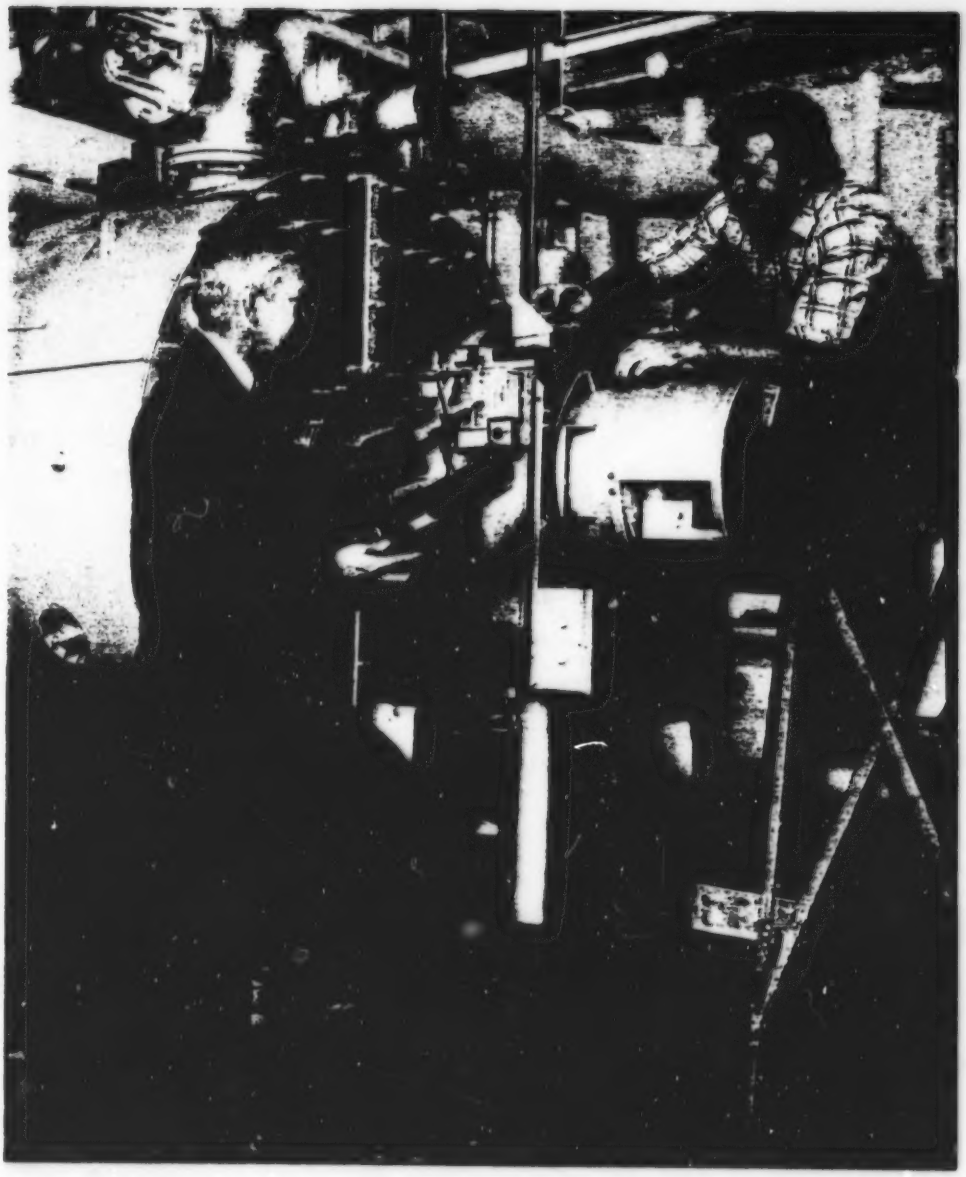


Average Cost of Natural Gas Purchased for Resale
(cents per Gigajoule)





Burnaby Central Senior Secondary School is one of many Lower Mainland schools being converted from oil to natural gas for space heating. Gas industrial technician Dave Knee tests gas flow after conversion, watched by Rupert Fischer of the school's maintenance staff.



Expansion Program (DSEP), which is designed to reduce consumption of oil, the federal government is contributing 73% of the capital cost of installing 10 km of gas mains and two regulator vaults to serve Hydro gas customers in the Aldergrove area. Hydro plans to continue to seek DSEP funds to help finance further expansion of its gas distribution system.

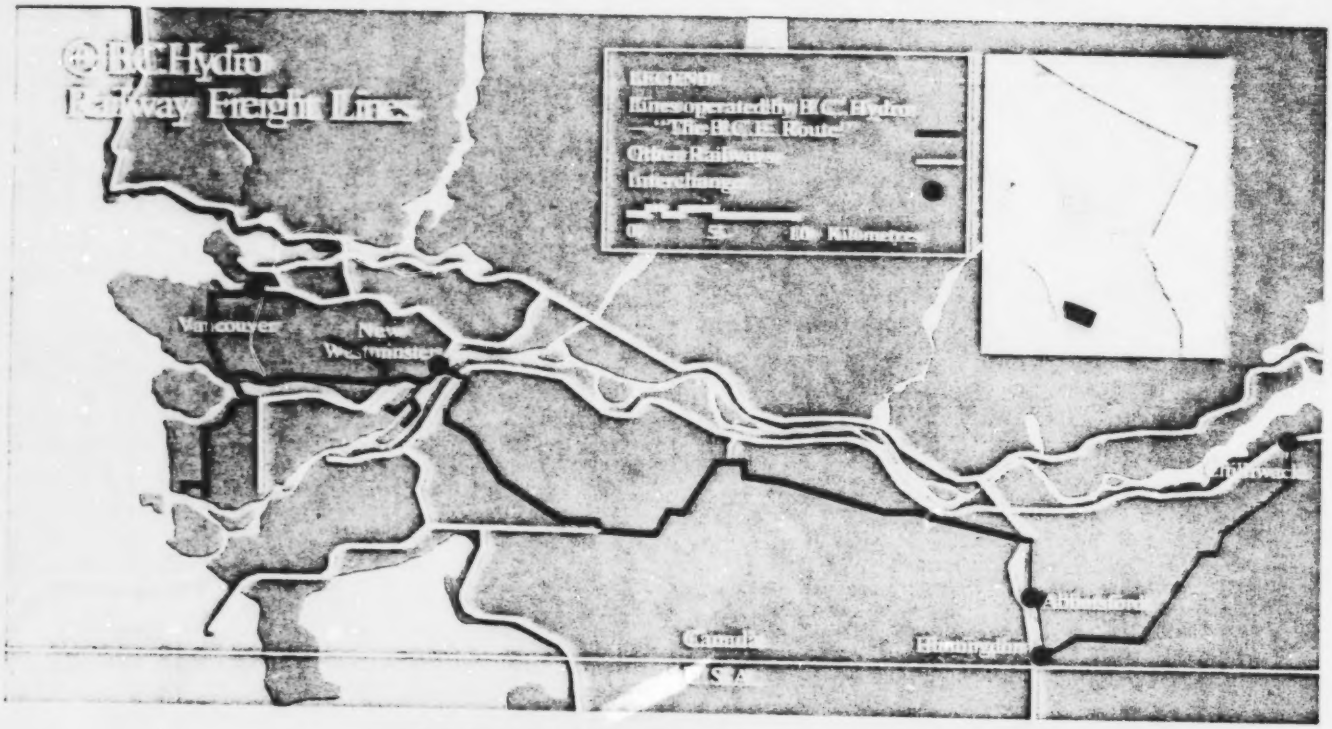
A large-scale program of polyethylene plastic pipe installation began during the year with approximately one-third of new services and about one-half of small-diameter mains using this material. Substantial cost savings are expected to result from this program.

A 20-year program to provide cathodic protection for all Hydro's buried coated-steel pipelines was completed, resulting in reduced maintenance requirements and improved safety through reduction of corrosion.

To accommodate new customers in its Lower Mainland service area, Hydro added 115 km of mains to the distribution system, compared with 110 km the previous year.

Railway Operations

Volume of rail freight carried increased 12% over the prior year to 2005 thousand tonnes, but railway operations showed a loss, for only the second year in their history. Business was adversely affected by labour disputes in the province and a decline in the number of imported automotive vehicles



carried, because of import quotas imposed by the federal government.

To accommodate Expo 86, Hydro rail facilities in the False Creek area of Vancouver were relocated to Burnaby in February 1984. The False Creek facilities, known as Carrall Yards, had been in use by Hydro and its predecessors since 1898.

B.C. Hydro railway rights-of-way, already shared in many cases with gas and electric facilities, are being used extensively for the new Advanced Light Rapid Transit (ALRT) system being built by B.C. Transit. The ALRT tracks are being built over the railway tracks for 13 km and eight of the 15 passenger stations are being constructed on railway property, thus extending the multiple use of this land.

Business Development

RATES

Increases of 6% in electric rates and 3.2% in mainland gas rates, approved by the B.C. Utilities Commission, took effect April 1, 1983.

The Commission approved pass-through rate increases averaging 1.5% for electric service effective January 1, 1984, to recover an increase in provincial water rental charges.

Pass-through gas rate increases of 6.5% for firm customers and 9.0% for interruptible customers also were approved by the Commission, effective August 1, 1983, to recover an increase in the cost of natural gas purchased by Hydro which was partially offset by a decrease in federal excise tax.

Greater Victoria gas rates were increased by 5.6% on July 1, 1983, and by 16.5% on October 1, 1983, to recover increases in the cost of propane.

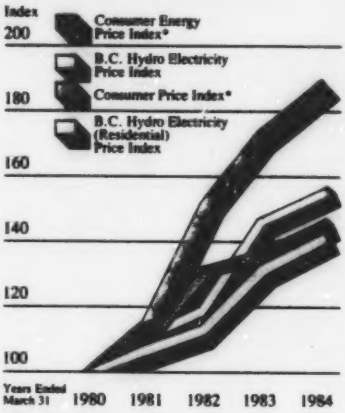
EXPORTS OF ELECTRICITY

A provincial government policy announced in November 1983 now permits commitments to export surplus firm electricity to the United States for periods longer than six months. The policy strengthens Hydro's position in the increasingly competitive surplus energy market.

In January 1984 Hydro concluded an agreement with the Los Angeles Department of Water and Power under which Los Angeles and three adjacent California cities will purchase up to (U.S.) $200 million of Hydro's surplus firm hydroelectric energy during the period November 1, 1983, to October 31, 1986. This agreement is subject to the approval of the National Energy Board.

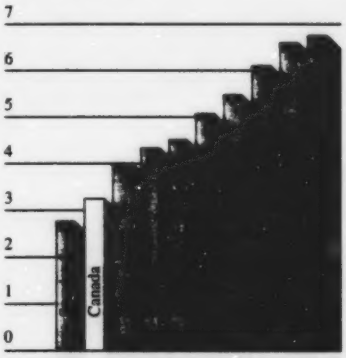
In March 1984 Hydro was issued an energy removal certificate by the provincial Minister of Energy, Mines and Petroleum Resources. The certificate permits, subject to conditions,

Price Comparison *(1980 = 100)*



SOURCE: Statistics Canada

Comparative Electricity Prices*
(Cents per kW·h)



SOURCE: Electricity '84 — Canadian Electrical Association

sale to the U.S. of surplus interruptible and firm electric energy and firm power up to specified amounts for a six-year period beginning October 1984.

The National Energy Board subsequently held a public hearing in Vancouver into Hydro's application for renewal and modification of three existing export licences which expire on September 30, 1984. The application covers the same six-year period. A decision is expected to be announced by the Board in summer 1984.

Monthly Residential Electric Bills*
1000 kW·h January 1984

New York	176
Boston	134
Charlottetown	117
Detroit	109
Chicago	108
Tampa	91
Dallas	88
Birmingham	83
Los Angeles	83
Washington D.C.	76
Little Rock	76
Atlanta	73
Louisville	66
St. Louis	65
Halifax	65
St. John's	65
Tennessee Valley Authority	59
Fredericton	57
Ontario — Rural	54
Portland, Oregon	53
Calgary	50
Vancouver	48
Ontario — Municipal Electric Utility Average	47
Regina	41
Montreal	39
Winnipeg	34

*Expressed in Canadian dollars — Statistics by Ontario Hydro

NATURAL GAS VEHICLES

Substantial progress was made during the year in Hydro's program to encourage the use of natural gas as a vehicle fuel (NGV). Sales of NGV rose from 26 to 139 terajoules, resulting in revenues of almost $475,000. The program has high potential for increased natural gas sales, with an increasing number of service stations planning to install NGV refuelling facilities in Hydro's mainland service area. A 134-car taxi operation in Vancouver has converted from gasoline to NGV, as have many of Hydro's own service vehicles. Marketing initiatives being planned include loan programs for conversions and for refuelling facilities.

INCENTIVES TO INDUSTRY

To help stimulate economic recovery in B.C. and sell surplus electricity, Hydro introduced a block recovery rate for a 12-month period beginning July 1983. This incentive rate, which applies only to purchases above normal consumption, allows large industrial customers to purchase surplus electricity at prices approximately 30% below their normal rate. By March 31, 1984, 190 million kW·h of additional

B.C. Automobile Association has converted its Lower Mainland fleet of tow trucks and service vehicles to natural gas operation. The Association also has installed its own natural gas refuelling station.

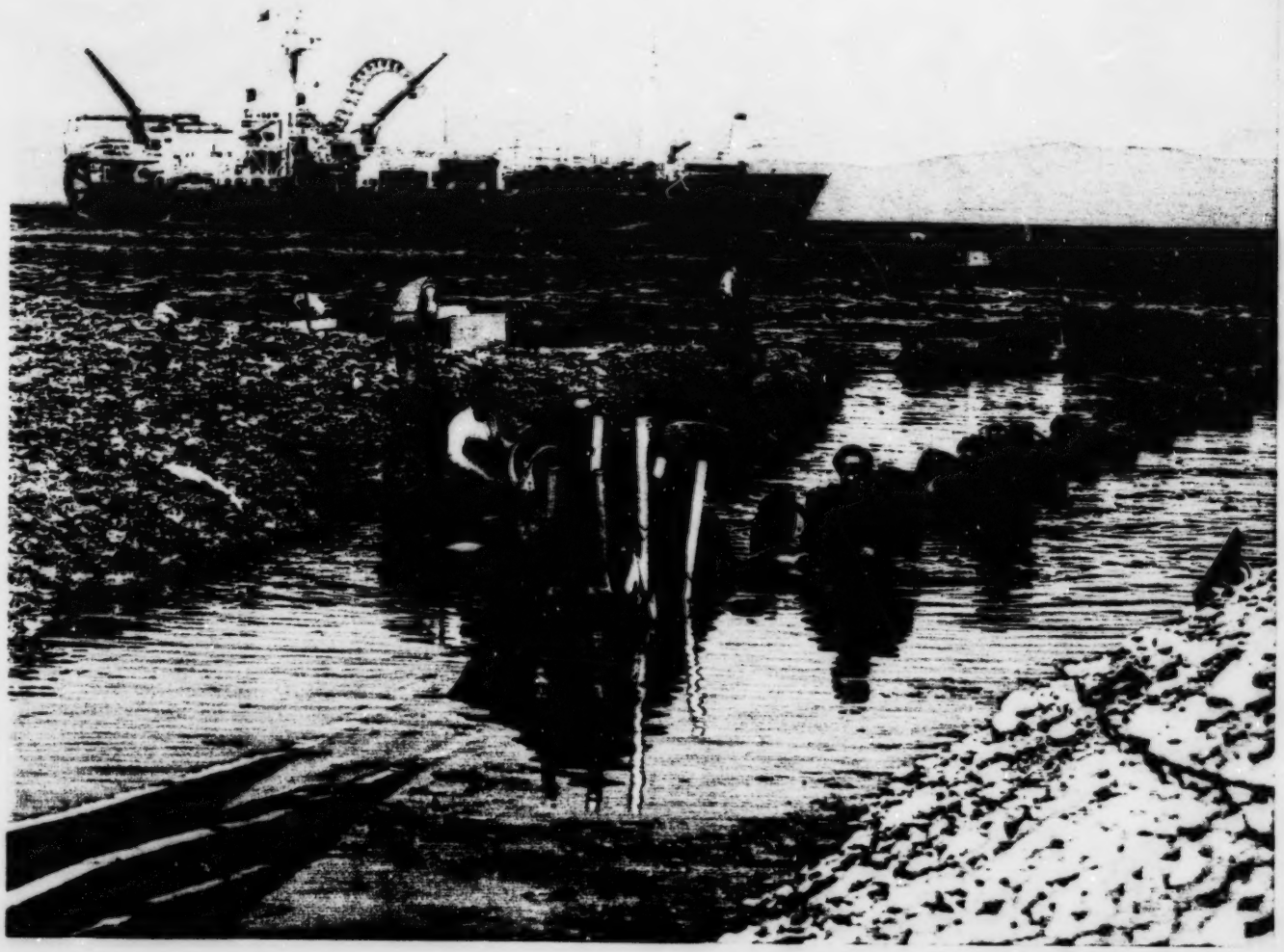
energy, representing about $4 million in revenue, had been sold through the block recovery rate.

ENERGY MANAGEMENT

Hydro is endeavouring to identify potential sources of revenue from new applications of electric energy, including railroad electrification, high-temperature heat pumps for the lumber-drying industry and electric drives for natural gas transmission pipeline compressors. Field tests are being carried out to verify the performance of new energy-efficient equipment to encourage conversion of residential heating systems from oil to electricity or natural gas. Among furnaces being tested is an oil-to-electricity hybrid which uses electricity under normal conditions, switching to oil only in severe cold. The furnace is eligible for grants under the Canada Oil Substitution Program.

Advisory programs for residential and industrial customers are being continued to promote the use of energy-efficient equipment and practices.

This Burnaby development is the first multi-family dwelling project in British Columbia to be built to the energy efficiency standards set by the Canadian Electrical Association.



Divers check one of the 500 kV submarine cables which supply electricity to Vancouver Island from the mainland. The cable ship Skagerrak is in the background.

During the year the first annual B.C. Hydro EE Energy Efficient Industry Award was presented to a Port Coquitlam foundry which achieved a 40% saving in energy through gas burner improvements. This saving enabled the foundry to remain competitive in its field. By March 31, 1984, 27 889 residential customers had taken advantage of Hydro's low-cost financing program to assist homeowners installing ceiling and wall insulation, multiple glazing or storm windows. About $24 million worth of insulation materials had been installed of which $12.7 million was financed by Hydro.

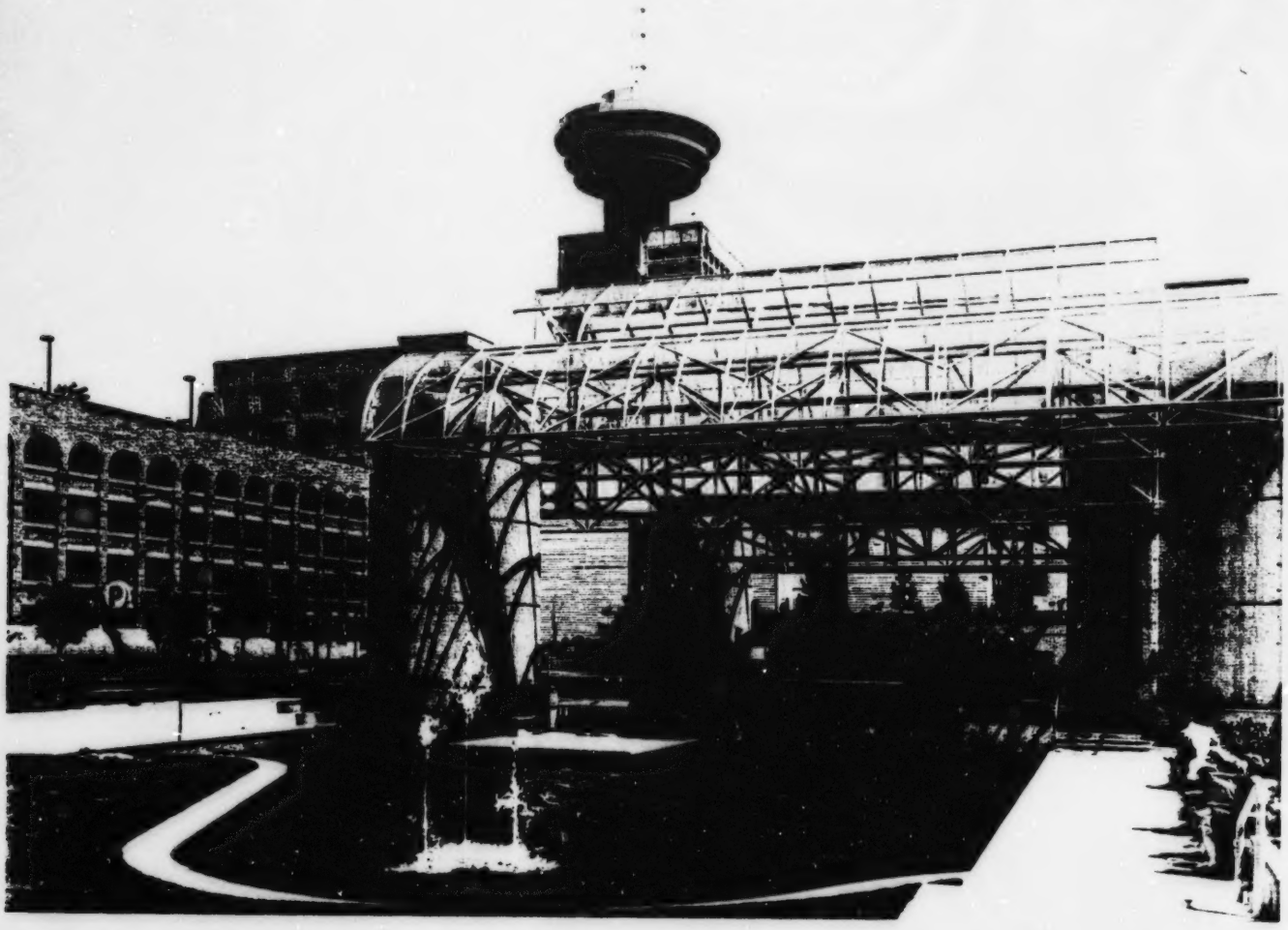
Engineering

CONSTRUCTION

Construction of the Revelstoke hydroelectric project, 5 km north of Revelstoke on the Columbia River, neared completion for generation of first power. Reservoir filling began on October 11, 1983, and reached the interim maximum level. Four 460 750 kW generating units are scheduled to be put into service during the 1984-85 fiscal year.

The first of two 500 kV alternating current transmission circuits between the mainland and Vancouver Island was placed in service during the year. Work is on schedule towards completion dates of fall 1984 for the underwater portion and fall 1985 for the overland portion of the second circuit.

Work continued on a 500 kV transmission line, which is scheduled for completion in late 1984, from Kelly Lake Substation near Clinton to Nicola Substation near Merritt. The line will strengthen interconnected transmission from hydroelectric projects on the Peace and Columbia rivers. Installation of foundations and erection of towers for a 500 kV line between Cranbrook and the



Attractive park developed by the city caps Hydro's six-storey-deep Cathedral Square Substation in downtown Vancouver.

Alberta border began. This interconnection will provide emergency support and energy exchange benefits to both Alberta and B.C. when completed in 1985.

The first phase of the Cathedral Square project, developed jointly by the City of Vancouver and Hydro, was completed. The project combines a large underground substation in downtown Vancouver with a landscaped street-level park.

As part of Hydro's continuing dam safety program, a new earthfill dam was built downstream to replace the 56-year-old Alouette Dam. Planning has begun for an upgrading of Coquitlam Dam, built between 1911 and 1914 by one of Hydro's predecessors. All Hydro's dams and reservoirs are inspected, monitored and re-evaluated on a systematic basis to ensure their continued safe operation, security against extreme floods and earthquakes, and overall stability.

PLANNING

In response to changing provincial energy needs and as a result of economic uncertainty, Hydro has adjusted its planning parameters. Reduced load-growth expectations have made it possible to defer planned in-service dates of a number of projects.

The Aluminum Company of Canada's proposal to complete the Kemano hydroelectric project in northwestern B.C., and to build a smelter, is being considered in Hydro's planning as a possible opportunity to buy, sell or exchange electric power and possibly to defer capital expenditures on new plant.

Studies of alternative energy resources have been scaled down, but are being actively pursued for remote communities where there is a potential for displacing more costly diesel generation.

RESEARCH AND DEVELOPMENT

A mobile plant to purify transformer-insulating oils that contain polychlorinated biphenyls (PCBs) was designed. Construction of the plant will start in 1984 as the first step in a program to exchange and purify PCB-based insulating oils in Hydro's electrical equipment.

Public Communication

Public consultation on Hydro's activities and policies makes an important contribution to Hydro's strategic planning decisions. A series of informal seminars was initiated to provide opportunities for senior management and planners to discuss these issues with key business and community representatives throughout the province. During the year seminars were held in Burnaby, Prince George and Cranbrook. Additional seminars in other provincial centres are planned on a continuing basis. These corporate issues seminars are conducted under the auspices of independent institutions such as regional colleges.

In fall 1983 Hydro presented a series of call-in television programs on the Knowledge Network as a low-cost means of conducting dialogue with customers throughout the province. The programs covered subjects of wide consumer interest such as load forecasting and appropriate choice of fuels and energy sources.

Hydro maintains a safety education program including employee training, news releases, publications, and presentations which reach an estimated 50 000 people annually in service organizations, schools and professional groups.

Employees

It is unfortunate that because of economic conditions the services of many highly-skilled and loyal employees had to be terminated in the past two years. At March 31, 1984, Hydro had 8205 employees compared with 8667 at March 31, 1983, a reduction of 5%, and a total reduction of 2000 people since July 1982.

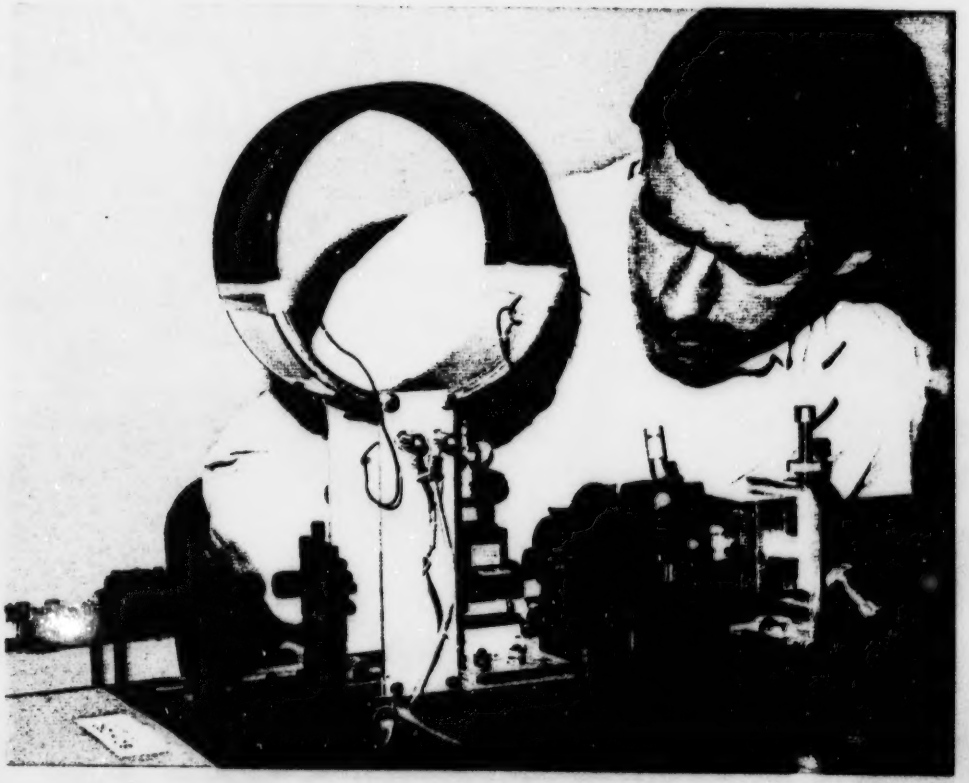
Collective bargaining agreements with the three principal labour unions, representing about 6500 employees, were reached following an 11-week strike, the longest in Hydro's history. The agreements, which expire on March 31, 1986, provided for one-time cash payments on return to work and a 4.5% increase in the 20th month of the 36-month contracts.

A similar three-year agreement, which expires on November 30, 1986, was reached with the association representing about 1400 supervisory, professional and confidential employees.

At year-end, negotiations were under way for renewal of a collective bargaining agreement with the union representing approximately 200 employees in Hydro's rail freight operations. The agreement expired March 31, 1984.

Ruth Sturby attends to a customer at Golden district office.

Alex Owen uses computer drafting equipment at Lower Mainland divisional office.



Hydro is a leader in fibre optic sensor technology. Research engineer Gordon Frank uses a laser at Hydro's research and development laboratory in a project to increase the reliability of measurements of electric current.

Financial Report

Financial Review

B.C. Hydro is the fifth-largest industrial corporation in Canada based on assets as reported in the Financial Post 500, Summer, 1984 and updated to include results for B.C. Hydro for the year ended March 31, 1984.

Canadian Companies Ranked by Assets

	Assets	Revenues	Net Income (Loss)	Employees
		(in millions)		
1. Hydro-Quebec	$25,199	$ 3,656	$ 707	18,975
2. Ontario Hydro	23,194	3,805	472	31,233
3. Canadian Pacific Limited	17,602	12,759	144	121,000
4. Bell Canada Enterprises Inc.	14,940	8,875	745	100,874
5. B.C. Hydro (March 1984)	9,593	1,613	51	8,205
6. Petro-Canada	8,239	4,127	133	6,601
7. Alcan Aluminium Limited*	8,213	6,418	71	70,000
8. Dome Petroleum Limited	8,178	2,595	(1,105)	6,500
9. Imperial Oil Limited	8,049	8,919	290	14,732
10. Canada Development Corp.	7,559	3,835	(45)	18,605

**Alcan Aluminium Limited dollar figures are converted from U.S. dollars.*

Regulation and Financial Objectives

Since 1980, B.C. Hydro's electric and gas services, including rates, have been regulated by the British Columbia Utilities Commission (the "Commission"), subject to any general or special direction of the Lieutenant Governor in Council with respect to the exercise of its powers.

A special direction issued in March 1981 stated that B.C. Hydro should achieve by the 1984 fiscal year an interest coverage ratio of 1.3:1 and should maintain that ratio thereafter so as to achieve and ultimately maintain a debt/equity ratio of 80:20. A revision to the special direction was issued in March 1984 whereby B.C. Hydro's rates should be set so as to maintain an interest coverage of 1.3:1 on the gas service and improve its interest coverage ratio on the electric service with reasonable consistency so as to achieve an interest coverage ratio of 1.3:1 by fiscal 1991. The revision also stated that B.C. Hydro should maintain an interest coverage ratio of 1.3:1 after fiscal 1991 on the electric and gas services so as to achieve and maintain a debt/equity ratio of 80:20.

For the year ended March 31, 1984, B.C. Hydro had an interest coverage ratio of 1.05:1 on the electric service and 1.33:1 on the gas service based on B.C. Hydro's historical method of calculating interest coverage. This historical method is based on the Securities and Exchange Commission's Ratio of Earnings to Fixed Charges, but after adjustment for rate stabilization and before extraordinary items. B.C. Hydro's debt/equity ratio as at March 31, 1984 was 93:7.

The Commision requires that interest coverage and debt/equity ratios be calculated differently for regulatory purposes. Under the Commission's method, the main differences from B.C. Hydro's historical method are:

1) For Interest Coverage — Income from temporary investments and income from sinking fund investments are not included in the computation of earnings but are deducted from total interest cost.
2) For Debt/Equity — Temporary investments are deducted from debt; the rate stabilization account, contributions in aid of construction and contributions arising from the Columbia River Treaty are considered equity.

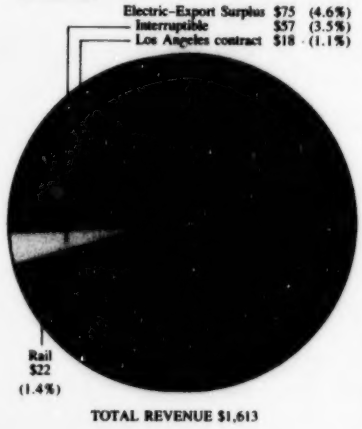
Ratios calculated under B.C. Hydro's historical method were as follows for the past five years:

	Years Ended March 31				
	1984	1983	1982	1981	1980
Interest Coverage Ratio					
— Electric	**1.05:1**	1.07:1	1.15:1	1.21:1	1.19:1
— Gas	**1.33:1**	1.07:1	1.29:1	1.03:1	1.42:1
— Total B.C. Hydro	**1.06:1**	1.07:1	1.17:1	1.21:1	1.21:1
Debt/Equity Ratio	**93:7**	93:7	93:7	93:7	95:5

Under the Commission's method, B.C. Hydro's ratios for regulatory purposes would be as follows:

	Years Ended March 31				
	1984	1983	1982	1981	1980
Interest Coverage Ratio					
— Electric	**1.05:1**	1.09:1	1.20:1	1.23:1	1.22:1
— Gas	**1.36:1**	1.09:1	1.36:1	1.03:1	1.49:1
— Total B.C. Hydro	**1.06:1**	1.08:1	1.22:1	1.24:1	1.23:1
Debt/Equity Ratio	**84:16**	84:16	83:17	85:15	85:15

Sources of Revenue
for the year ended March 31, 1984
($ millions)



TOTAL REVENUE $1,613

Results of Operations

B.C. Hydro's operating income was $37 million for the year ended March 31, 1984 compared with $77 million in 1983 and $210 million in 1982. Included in the current year's operating expenses is a $47 million charge principally relating to the write-off of costs for certain development studies.

After the adjustment for rate stabilization, net income for the current year was $51 million compared with a net loss of $19 million in 1983 and a net income of $120 million in 1982. The net loss in 1983 included an extraordinary write-off of $77 million relating to the Hat Creek project.

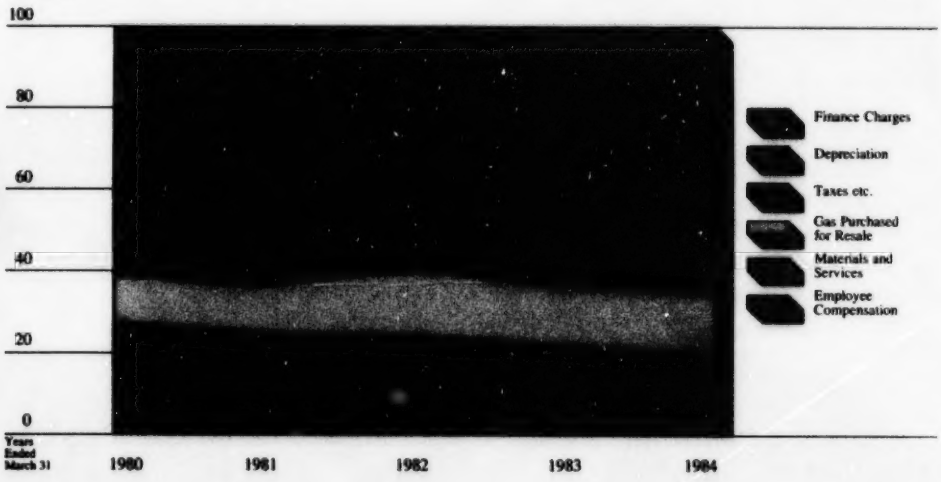
Total revenues for 1984 amounted to $1,613 million, an increase of $85 million over 1983. Revenues from domestic sales increased by $107 million whereas export surplus sales decreased by $22 million.

Increases in domestic revenues were mainly the result of rate increases effective April 1, 1983. Decreases in export surplus revenues are due to increased competition in markets for surplus electricity. Export surplus revenues in the current year include $18 million from sales made to Los Angeles in accordance with an agreement concluded in January 1984.

Distribution of Operating Expenses
for the year ended March 31, 1984
($ millions)

Operating Expenses	$1,056
Finance Charges	520
Total Operating Expenses	$1,576

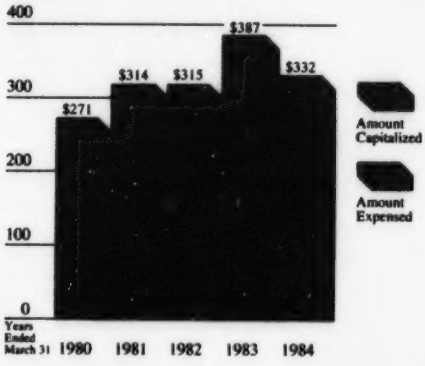
Distribution of Operating Expenses
(percent)



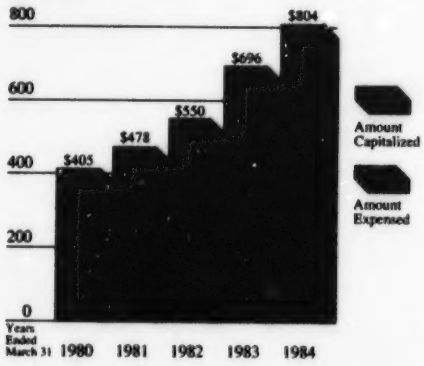
The cost of providing services, excluding finance charges, for the year totalled $1,056 million, an increase of $84 million over 1983. This increase was primarily the result of charges of $47 million principally relating to development studies on projects which have been deferred indefinitely and the costs of which are included in depreciation expense. The placing in service of $374 million of fixed assets for the year ended March 31, 1983 also contributed to increased depreciation expense.

Employee compensation, as a share of total operating expense, decreased from 15% in 1983 to 14% in 1984. Total employee compensation, including portions capitalized, decreased by $55 million or 14% compared with the previous year, primarily as a result of continued management restraints, reductions in the number of employees and the effects of an 11-week employee strike.

Employee Compensation
($ millions)

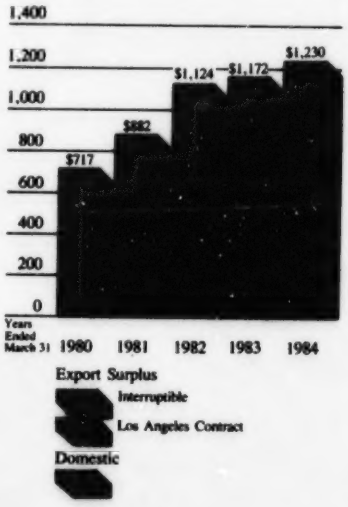


Finance Charges
($ millions)



Finance charges, net of amounts capitalized, increased $41 million over the previous year. This increase was due primarily to placing additional fixed assets into service.

Electric — Sources of Revenue
($ millions)



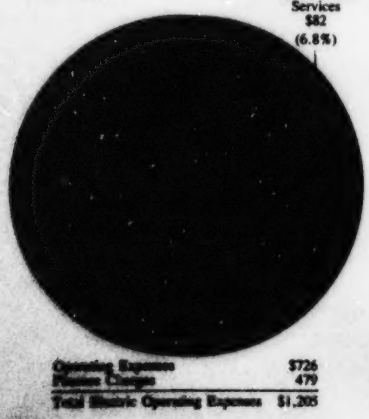
Electric Service

Operating income for the electric service was $25 million in 1984 compared with $76 million in 1983. After the adjustment for rate stabilization, income was $39 million in 1984 compared with $57 million in 1983.

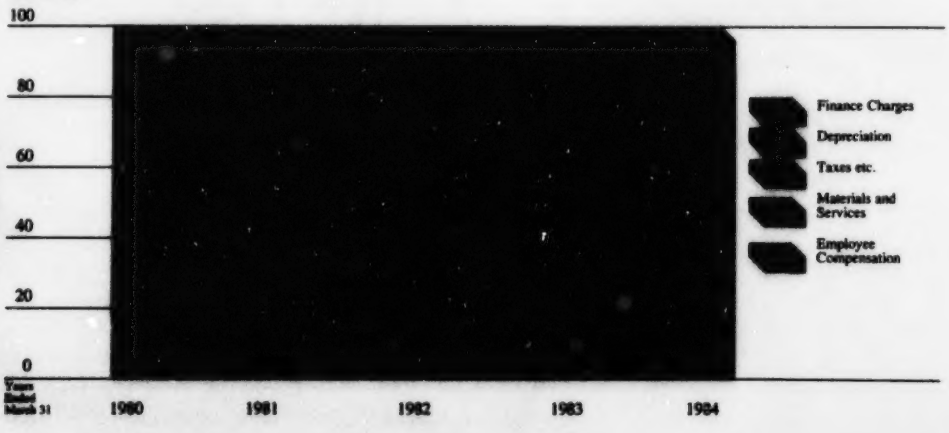
During 1984, an adjustment of $14 million was made to income from the rate stabilization account. This adjustment represents the excess of the $60 million transfer to income from the account over the $46 million transfer of income from interruptible export surplus sales to the account. In 1983, an adjustment of $19 million was made into the account representing the excess of income from interruptible export surplus sales transferred to the account over the transfer of $60 million to income from the account.

Total electric revenues increased $58 million or 5% over the previous year. Domestic revenues increased $80 million primarily as a result of a 6% general rate increase effective April 1, 1983. Export surplus revenues decreased $22 million due to limitations in transmission capabilities and to lower prices and volumes as a result of the greater competition from utilities in the U.S. Pacific Northwest for the available markets.

Electric
Distribution of Operating Expenses
for the year ended March 31, 1984
($ millions)



Distribution of Electric Operating Expenses
(percent)



Operating Statistics — Electric Service

years ended March 31

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
Generating nameplate capacity at year-end (rated kW in thousands)*											
Hydroelectric	7 489	7 491	7 491	7 491	6 588	5 883	5 883	5 449	3 882	3 618	3 318
Thermal	1 271	1 341	1 347	1 346	1 360	1 363	1 293	1 301	1 299	1 104	1 061
Total	8 760	8 832	8 838	8 837	7 948	7 246	7 176	6 750	5 181	4 722	4 379
Peak one-hour demand integrated system (kW in thousands)	6 215	5 508	5 902	5 475	5 198	5 091	4 621	4 258	4 063	3 791	3 578
Customers at year-end											
Residential	990 219	967 754	943 587	915 270	882 923	858 397	829 266	797 588	760 066	733 432	697 366
General	133 652	132 383	130 818	128 163	124 754	123 124	121 407	117 580	113 579	108 006	102 535
Transmission	77	65	62	59	55	52	48	47	48	47	47
Other**	2 320	2 227	2 433	2 636	2 166	2 487	1 730	1 650	1 566	1 458	1 314
Export Surplus	16	13	14	10	14	16	13	12	—	12	6
Total electric customers	1 126 284	1 102 442	1 076 914	1 046 138	1 009 912	984 076	952 464	916 877	875 259	842 955	801 268
Electricity sold (kW·h in millions)											
Residential	9 067	8 790	8 755	8 104	7 611	7 407	7 040	6 664	6 246	5 782	5 281
General	9 957	9 736	9 727	9 377	8 925	8 596	8 137	7 675	7 094	6 837	6 515
Transmission	9 240	9 040	9 305	9 612	9 229	9 147	8 527	8 166	6 808	7 714	7 776
Other**	805	1 074	1 177	1 129	688	623	446	672	490	394	375
Domestic and other	29 069	28 640	28 964	28 222	26 453	25 773	24 150	23 177	20 638	20 727	19 947
Export Surplus	2 834	3 623	6 315	1 816	870	1 310	3 907	1 706	—	807	2 031
Total electricity sold	31 903	32 263	35 279	30 038	27 323	27 083	28 057	24 883	20 638	21 534	21 978
Increase (decrease) over previous year (%)	(1.1)	(8.5)	17.4	9.9	0.9	(3.5)	12.8	20.6	(4.2)	(2.0)	14.8
Electric Revenue (millions of dollars)											
Residential	$ 448	$ 410	$ 348	$312	$267	$255	$217	$180	$142	$119	$ 98
General	425	389	328	301	261	246	205	169	138	116	105
Transmission	239	228	161	153	120	105	85	72	46	46	46
Other**	31	34	30	29	19	18	14	12	10	8	7
Rents and Miscellaneous	12	14	24	24	15	14	12	11	8	6	4
Domestic and other	1 155	1 075	891	819	682	638	533	444	344	295	260
Export Surplus	75	97	233	63	35	33	78	23	—	5	10
Total electric revenues	$1,230	$1,172	$1,124	$882	$717	$671	$611	$467	$344	$300	$270
Average revenue per kW·h (cents)											
Residential	4.9	4.7	4.0	3.8	3.5	3.4	3.1	2.7	2.3	2.1	1.9
General	4.3	4.0	3.4	3.2	2.9	2.9	2.5	2.2	2.0	1.7	1.6
Transmission	2.6	2.5	1.7	1.6	1.3	1.1	1.0	0.9	0.7	0.6	0.6
Other**	3.8	3.1	2.6	2.6	2.8	2.9	3.1	1.8	2.0	1.9	1.8
Export Surplus	2.7	2.7	3.7	3.5	4.1	2.5	2.0	1.3	—	0.6	0.5
Average annual kW·h use per residential customer	9 267	9 214	9 413	9 001	8 736	8 747	8 620	8 452	8 370	7 928	7 694
Lines in service											
Distribution (kilometres)	45 773+	42 231	40 789	39 472	38 279	37 125	36 129	35 093	34 089	32 701	31 378
Transmission (circuit kilometres)	16 701	16 543	16 098	15 335	15 258	14 793	14 259	14 082	12 733	12 424	12 435

** Excludes electricity available from other systems. Rated capacity has been exceeded on occasion.*
***Includes Irrigation, Street Lighting and sales to Washington Water Power.*
+Includes B.C. Hydro lines on private property.

The domestic volume of electricity sold increased by 3% over the previous year with all customer categories showing increases. Although transmission rate customer consumption increased by 2%, it is estimated that $25 million in revenue was lost in 1984 as a result of a 10-week pulp and paper industry dispute.

Electric operating expenses, excluding finance charges, increased by $71 million over the previous year primarily as a result of charges of $47 million principally relating to development studies on projects which have been deferred indefinitely and the costs of which are included in depreciation expense.

Finance charges, net of amounts capitalized, increased by $38 million or 9% over the previous year. This increase was due mainly to the placing in service of the first circuit of the Mainland-Vancouver Island transmission line.

Gas Service

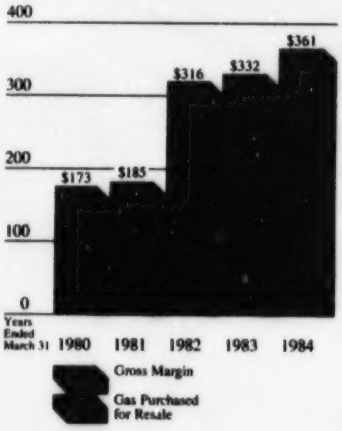
Operating income for the gas service was $14 million in 1984 compared with $3 million in 1983.

Gas revenues increased $29 million or 9% over the previous year. Half of this increase is attributable to rate increases with volume increases accounting for the other half.

Effective April 1, 1983, a 3.2% general rate increase was applied to all mainland gas customers. On August 1, 1983 there was an increase in the wholesale price of natural gas which was partially offset by an accompanying decrease in the federal excise tax. Subsequently, on February 1, 1984, the federal excise tax was eliminated and this decrease was offset by an increase in the wholesale price. The net effect of the changes in rates was increased revenues of $15 million.

Consumption increased in all customer categories with the total volume of gas sold being up 4% compared with 1983. Higher residential and general consumption was caused by increases in the number of customers and the colder winter heating season in 1984. Degree days, a measure of daily mean temperature variation below 18 degrees Celsius, were 8% higher during the last peak heating season than in the previous year but still marginally below the 30-year norm.

Gas Sales
($ millions)

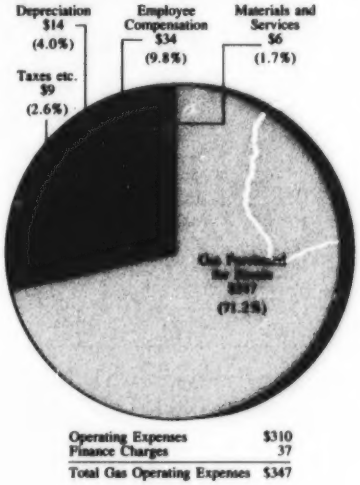


Operating Statistics — Gas Service
years ended March 31

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
One-day capacity at year-end (terajoules)											
Mainland — firm pipeline contracts	382	413	409	388	380	422	422	422	422	411	344
— plant	158	158	158	158	158	158	158	158	158	158	158
— underground storage	56	—	—	—	—	—	—	—	—	—	—
Greater Victoria — plant	6	6	6	6	6	6	6	6	6	6	6
Peak one-day demand (terajoules)											
Mainland system											
— including interruptible	610	493	586	493	507	510	404	377	430	368	384
— excluding interruptible	609	419	564	488	486	508	402	365	364	356	331
Greater Victoria system	2	1	2	2	2	2	2	2	2	2	3
Customers at year-end											
Residential	313 894	304 326	294 838	282 894	263 036	252 032	245 638	238 290	228 848	220 027	210 187
General	37 859	37 443	36 476	35 374	34 537	33 684	32 596	31 365	30 120	29 227	27 925
Interruptible	103	99	95	98	103	103	101	112	115	121	125
Total gas customers	351 856	341 868	331 409	318 366	297 676	285 819	278 335	269 767	259 083	249 375	238 237
Gas sold (terajoules)											
Residential	36 091	33 646	37 694	31 806	31 962	32 450	31 215	30 552	32 093	29 485	28 371
General	33 118	32 367	36 069	32 057	32 085	34 001	30 568	28 119	28 313	25 412	24 178
Interruptible	20 316	19 956	22 484	21 758	24 027	21 282	21 490	21 335	20 150	22 202	22 466
Total gas sold	89 525	85 969	96 247	85 621	88 074	87 733	83 273	80 006	80 556	77 099	75 015
Increase (decrease) over previous year (%)	4.1	(10.7)	12.4	(2.8)	0.4	5.4	4.1	(0.7)	4.5	2.8	9.6
Gas revenues (millions of dollars)											
Residential	$162	$145	$139	$ 81	$ 75	$ 74	$ 66	$ 52	$46	$40	$33
General	135	126	118	70	64	66	46	35	30	25	20
Interruptible	63	60	56	33	33	29	23	16	13	13	8
Rents and Miscellaneous	1	1	3	1	1	1	1	1	1	—	—
Total gas revenues	$361	$332	$316	$185	$173	$170	$136	$104	$90	$78	$61
Average revenue per gigajoule (in dollars)	4.02	3.85	3.25	2.14	1.95	1.93	1.62	1.30	1.11	1.01	.81

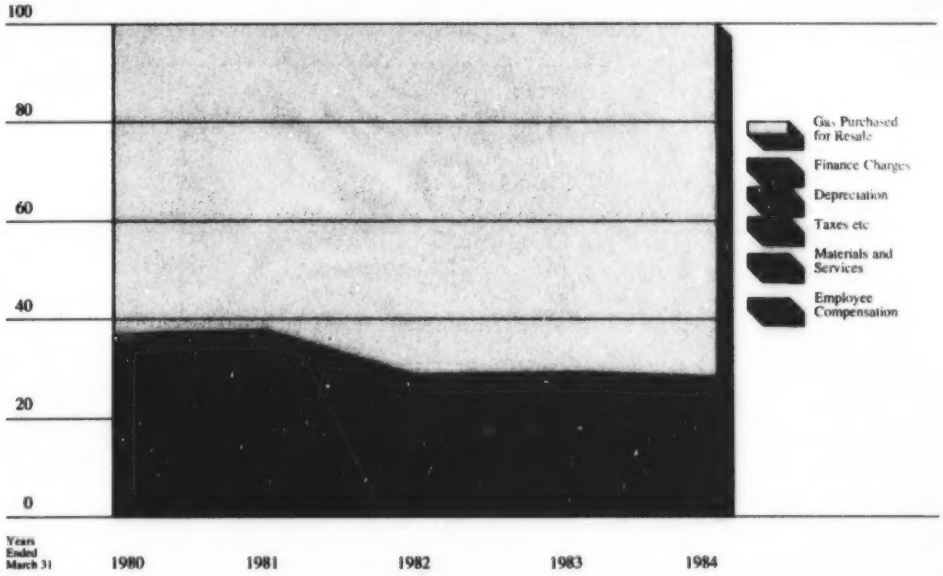
Gas operating expenses, excluding finance charges, increased by $15 million or 5% over the previous year and this was mainly the result of increased gas purchase costs due to the higher sales volumes.

Gas
Distribution of Operating Expenses
for the year ended March 31, 1984
($ millions)



Operating Expenses	$310
Finance Charges	37
Total Gas Operating Expenses	$347

Distribution of Gas Operating Expenses
(percent)



Rail Service

The rail service incurred an operating loss of $1 million in 1984 compared with an operating loss of $3 million in 1983.

Increased revenues and decreased expenses in 1984 combined to lower the operating loss as compared to 1983. The increased revenues were primarily the result of a 12% increase in the freight tonnes carried. This increase would have been higher had it not been for the effects of labour disputes, both internal and those affecting customers of the rail service.

Freight tonnes carried in 1984 were 2,005 thousand compared with 1,784 thousand in 1983 but both years were still significantly below the 2,383 thousand carried in 1982.

Operating Statistics — Rail Freight Service
years ended March 31

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
Freight carried (thousands of tonnes)	2 005	1 784	2 383	2 458	2 603	2 536	2 397	2 393	2 321	2 494	2 539

Capital Requirements

During the year ended March 31, 1984, capital expenditures totalled $820 million primarily because of the large capital requirements for the Revelstoke project and the Mainland-Vancouver Island 500 kV transmission line. The following table is a summary of actual capital expenditures for the period 1980 through 1984:

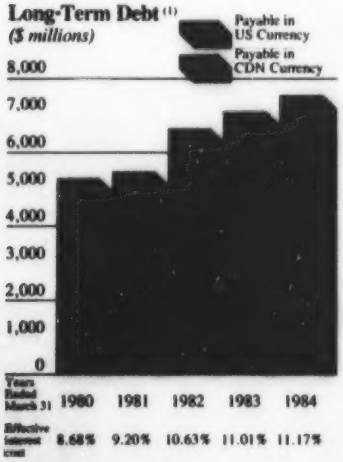
	Total Fixed Asset Expenditures Years Ended March 31				
	1984	1983	1982	1981	1980
			(in millions)		
Electric					
Generation	**$401**	$ 502	$ 465	$281	$400
Transmission	**250**	260	213	176	127
Transformation	**61**	119	149	95	71
Distribution	**59**	85	104	107	94
Other	**10**	31	60	36	34
Total Electric	**781**	997	991	695	726
Gas	**33**	37	60	44	27
Rail	**5**	1	2	1	2
Sundry	**1**	2	—	—	—
Total	**$820**	$1,037	$1,053	$740	$755

The first two generating units of the Revelstoke project came into service in May 1984 with the third and fourth units expected to be in service later in 1984. Total costs for the Revelstoke project to March 31, 1984, were $1,878 million.

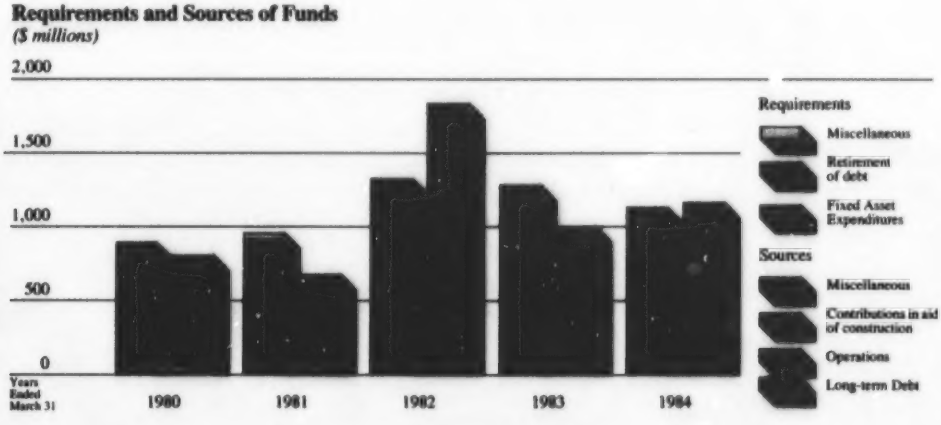
The first of two circuits for the Mainland-Vancouver Island transmission line came into service in November 1983 at a cost of $421 million. Total costs for the project to March 31, 1984, were $640 million. The second circuit is expected to be completed within the next two years.

Financing

During the year, B.C. Hydro borrowed U.S. $650 million from the public financial markets in the United States and Europe at an effective interest cost of 12.68%.



(1) Long-term debt outstanding at year-end, net of sinking funds



As at March 31, 1984, B.C. Hydro's outstanding long-term debt totalled $8,297 million; of this amount, approximately half was in Canadian dollars and half was in U.S. dollars. The effective interest cost on debt outstanding during 1984 was 11.17%.

Many long-term borrowings have sinking fund provisions to ensure that funds are available at maturity to repay a significant portion of the debt. As at March 31, 1984, the sinking fund balance totalled $721 million.

As at March 31, 1984, B.C. Hydro's credit rating from the two major financial rating agencies in the United States, Moody's Investor Services and Standard & Poor's Corporation were Aa1 and AA+ respectively.

Financial Statistics *(in millions)*
years ended March 31

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
Sources of Revenue											
Electric	**$1,230**	1,172	1,124	882	717	671	611	467	344	300	270
Gas	**361**	332	316	185	173	170	136	104	90	78	61
Rail	**22**	22	27	25	23	21	18	16	15	14	13
Sundry	**—**	2	6	5	3	1	1	1	2	—	—
Provincial Government special subsidy	**—**	—	—	—	—	—	—	33	33	—	—
Total	**$1,613**	1,528	1,473	1,097	916	863	766	621	484	392	344
Disposition of Revenue											
Employee compensation	**$ 214**	212	197	166	144	132	126	115	104	79	60
Materials and services	**93**	100	103	79	74	64	59	49	44	34	35
Gas purchased for resale	**247**	233	219	113	102	101	80	59	47	45	35
Water rentals, school taxes and grants	**262**	254	183	90	71	66	53	45	39	28	25
Depreciation	**240**	173	153	136	119	107	97	78	70	64	60
Finance charges	**520**	479	408	400	310	283	262	187	142	116	104
Total	**1,576**	1,451	1,263	984	820	753	677	533	446	366	319
Adjustment for Rate Stabilization	**(14)**	19	90	—	—	—	—	—	—	—	—
	1,562	1,470	1,353	984	820	753	677	533	446	366	319
Loss on passenger transportation operations	**—**	—	—	—	56	61	61	50	36	21	10
	1,562	1,470	1,353	984	876	814	738	583	482	387	329
Loss on discontinuance of passenger transportation operations	**—**	—	—	—	38	—	—	—	—	—	—
Loss on deferral of Hat Creek Project	**—**	77	—	—	—	—	—	—	—	—	—
Employed in the business	**51**	(19)	120	113	2	49	28	38	2	5	15
Total	**$1,613**	1,528	1,473	1,097	916	863	766	621	484	392	344
Fixed Assets											
Fixed assets in service, at cost	**$8,046**	7,566	7,192	6,691	5,991	5,339	4,921	4,541	3,607	3,254	3,002
Accumulated depreciation	**1,660**	1,499	1,345	1,199	1,063	980	878	784	706	634	568
	$6,386	6,067	5,847	5,492	4,928	4,359	4,043	3,757	2,901	2,620	2,434
Fixed asset expenditures	**$ 820**	1,037	1,053	740	755	722	641	548	591	464	332
Contributions in aid of construction	**30**	65	37	32	25	19	22	22	20	12	9
Net fixed asset expenditures	**$ 790**	972	1,016	708	730	703	619	526	571	452	323
Long-Term Debt — Net	**$7,203**	6,833	6,425	5,324	5,176	4,739	4,337	3,605	2,990	2,515	2,055

Employees at Year-End*

Regular	**7,739**	8,212	8,610	8,441	11,330	11,618	11,611	11,339	11,226	10,361	8,945
Temporary	**466**	455	1,123	1,099	865	932	946	1,001	807	1,255	1,080
Total	**8,205**	8,667	9,733	9,540	12,195	12,550	12,557	12,340	12,033	11,616	10,025

**1974 to 1980 includes passenger transportation employees.*

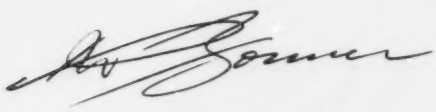
Financial Statements

Management Report

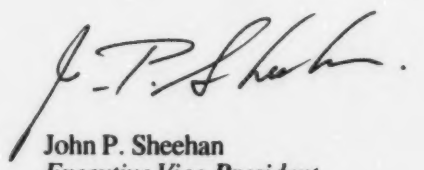
The financial statements of B.C. Hydro have been prepared by management in accordance with accounting principles generally accepted in Canada consistently applied and appropriate in the circumstances. Because a precise determination of many assets and liabilities is dependent upon future events, the preparation of periodic financial statements necessarily involves the use of estimates and approximations which have been made using careful judgement. The financial statements have, in management's opinion, been properly prepared within reasonable limits of materiality and within the framework of the accounting policies summarized in the notes to the financial statements. Financial information presented elsewhere in this Annual Report is consistent with that in the financial statements.

Management depends upon a system of internal controls in order to provide reasonable assurance, on a cost-effective basis, that financial information is reliable and accurate. This system includes formal written policies and procedures, the careful selection and training of qualified personnel, and an organizational structure that provides for the appropriate delegation of authority and segregation of responsibilities. Our internal auditors monitor this system through the performance of a comprehensive internal audit program. Our external auditors, Price Waterhouse, also perform such tests of the system of internal controls as they consider necessary for the purpose of expressing their opinion on the financial statements.

The Board of Directors pursues its responsibility for these financial statements principally through its Audit Committee which meets periodically with management as well as with the internal and the external auditors who have full and free access to the Audit Committee, and meet with it to discuss auditing and financial reporting matters. Management is responsible for, and the Board of Directors has approved, all of the information in the Annual Report.



Robert W. Bonner, Q.C.
Chairman and Chief Executive Officer



John P. Sheehan
Executive Vice-President, Finance and Administration and Chief Financial Officer

June 29, 1984

Report of the Auditors

The Lieutenant Governor in Council,
Province of British Columbia:

We have examined the balance sheets of British Columbia Hydro and Power Authority as at March 31, 1984 and 1983 and the statements of income and earnings employed in the business and changes in financial position for each of the three years in the period ended March 31, 1984. Our examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of British Columbia Hydro and Power Authority as at March 31, 1984 and 1983 and the results of its operations and the changes in its financial position for each of the three years in the period ended March 31, 1984 in accordance with generally accepted accounting principles consistently applied.

Vancouver, British Columbia
June 29, 1984

PRICE WATERHOUSE
Chartered Accountants

British Columbia Hydro and Power Authority

Statement of Income and Earnings Employed in the Business

for the years ended March 31

	1984	1983	1982
		(in millions)	
REVENUES:			
Electric — Domestic and other	$1,155	$1,075	$ 891
— Export surplus *(Notes 2 and 9)*	75	97	233
Total Electric	1,230	1,172	1,124
Gas	361	332	316
Rail	22	22	27
Sundry	—	2	6
Total Revenues	1,613	1,528	1,473
EXPENSES:			
Employee compensation	214	212	197
Materials and services	93	100	103
Gas purchased for resale	247	233	219
Water rentals, school taxes and grants	262	254	183
Depreciation *(Note 3)*	240	173	153
	1,056	972	855
OPERATING INCOME BEFORE FINANCE CHARGES	557	556	618
Finance charges *(Note 10)*	520	479	408
OPERATING INCOME	37	77	210
Adjustment for rate stabilization *(Note 2)*	14	(19)	(90)
INCOME BEFORE EXTRAORDINARY ITEM	51	58	120
Extraordinary item *(Note 11)*	—	(77)	—
NET INCOME (LOSS)	51	(19)	120
EARNINGS EMPLOYED IN THE BUSINESS:			
At beginning of year	494	513	393
At end of year	$ 545	$ 494	$ 513

British Columbia Hydro and Power Authority

Balance Sheet

as at March 31

	1984	1983
		(in millions)
FIXED ASSETS *(Note 3)*:		
Fixed assets in service, at cost	**$8,046**	$7,566
Less —		
Accumulated depreciation	**1,660**	1,499
	6,386	6,067
Unfinished construction	**2,375**	2,128
	8,761	8,195
CURRENT ASSETS:		
Temporary investments	**300**	266
Accounts receivable and unbilled revenues	**292**	249
Materials and supplies, at average cost	**54**	65
Prepaid expenses	**36**	28
	682	608
UNAMORTIZED DISCOUNT AND ISSUE EXPENSE ON LONG-TERM DEBT	**74**	62
OTHER ASSETS *(Note 4)*	**76**	45
	$9,593	$8,910

APPROVED BY THE DIRECTORS:

Sandra D. Sutherland, Director

Robert W. Bonner, Q.C., Director

	1984	1983
	(in millions)	
LONG-TERM LIABILITIES:		
Long-term debt *(Notes 5 and 6)*	**$7,203**	$6,833
Deferred liabilities	**47**	58
	7,250	6,891
CURRENT LIABILITIES:		
Bank indebtedness	**62**	18
Accounts payable	**312**	246
Accrued interest	**303**	278
Long-term debt payments due within one year —		
Sinking fund instalments	**97**	87
Maturities, less sinking fund	**276**	144
	1,050	773
RATE STABILIZATION ACCOUNT *(Note 2)*	**95**	109
CONTRIBUTIONS ARISING FROM COLUMBIA RIVER TREATY	**378**	387
CONTRIBUTIONS IN AID OF CONSTRUCTION	**275**	256
EARNINGS EMPLOYED IN THE BUSINESS	**545**	494
COMMITMENTS AND CONTINGENCIES *(Note 8)*		
	$9,593	$8,910

British Columbia Hydro and Power Authority

Statement of Changes in Financial Position

for the years ended March 31

	1984	1983	1982
		(in millions)	
SOURCES OF FUNDS:			
Operations			
Operating income	$ 37	$ 77	$ 210
Charges (credit) not affecting funds:			
Depreciation	240	173	153
Other	17	12	(1)
Funds from operations	294	262	362
Long-term debt	786	663	1,334
Contributions in aid of construction	30	65	37
Miscellaneous	(49)	(48)	32
Change in — accounts receivable	(43)	37	(49)
— accounts payable	66	(12)	40
— accrued interest	25	50	82
— other current assets and liabilities	47	(17)	1
	1,156	1,000	1,839
USES OF FUNDS:			
Fixed asset expenditures*	820	1,037	1,053
Sinking fund —			
Instalments	87	72	55
Income	70	56	54
Retirement of —			
Long-term debt	145	100	116
Notes payable	—	—	48
	1,122	1,265	1,326
INCREASE (DECREASE) IN TEMPORARY INVESTMENTS	34	(265)	513
TEMPORARY INVESTMENTS AT BEGINNING OF YEAR	266	531	18
TEMPORARY INVESTMENTS AT END OF YEAR	$ 300	$ 266	$ 531

**Includes finance charges capitalized in the amount of $284 million (1983 – $217 million; 1982 – $142 million)*

British Columbia Hydro and Power Authority

Notes to Financial Statements

Note 1 Significant Accounting Policies:

B.C. Hydro is a Crown corporation of the Province of British Columbia. B.C. Hydro's electric and gas services, including rates, are subject to regulation by the British Columbia Utilities Commission (the "Commission"). The accounting policies of the corporation conform to accounting principles generally accepted in Canada. A description of significant accounting policies follows. See also Note 2 for an explanation of the rate stabilization account.

FIXED ASSETS

Fixed assets in service consist principally of land, water rights, storage dams, plants for the generation, transmission and distribution of electricity and the distribution of gas, freight railway and rolling stock, and include the cost of plant financed by contributions in aid of construction and contributions arising from the Columbia River Treaty.

DEPRECIATION

The depreciation policy of B.C. Hydro is to charge the original cost of fixed assets to income over the estimated service lives of the assets. Depreciation is provided on all depreciable assets in service as at the beginning of each year and is computed on the straight-line method.

FINANCE CHARGES CAPITALIZED

B.C. Hydro capitalizes finance charges at rates equivalent to the cost of borrowing those funds expended on construction projects during the year.

CONTRIBUTIONS

Contributions in aid of construction are amortized over the estimated service lives of the related assets, and the credit resulting therefrom is offset against the corresponding provision for depreciation.

Contributions arising from the Columbia River Treaty are amortized over the period ending in fiscal year 2025, the minimum term of the Treaty, and the credit resulting therefrom is offset against and is equal to the annual provision for depreciation of the related assets.

Contributions received in respect of unfinished construction are included with deferred liabilities until the assets are placed in service.

FOREIGN CURRENCY TRANSLATION

The liability for long-term debt payable in United States currency is translated into Canadian currency at the rates of exchange prevailing at the date the debt was incurred. Current assets and current liabilities denominated in United States currency, including long-term debt payable within one year, are translated at the rate of exchange prevailing at the date of the balance sheet. Foreign exchange adjustments are included in income.

In June 1983, the Canadian Institute of Chartered Accountants issued an accounting recommendation relating to foreign currency translation which will require B.C. Hydro to change its present accounting policy. The new recommendation requires that all long-term debt be translated at the rate of exchange prevailing at the date of the balance sheet, with the resulting gain or loss deferred and systematically amortized over the remaining life of the debt. B.C. Hydro intends to adopt the new policy, and has elected to do so on a retroactive basis, as of April 1, 1984. As a result of the change, earnings employed in the business will be reduced by approximately $90 million as of April 1, 1984.

DISCOUNT AND ISSUE EXPENSE ON LONG-TERM DEBT

These costs are amortized by charges to income on a straight-line basis over the lives of the respective issues.

Note 2 Rate Stabilization Account:

The Commission directed B.C. Hydro to create as of March 31, 1982, an account to be known as the rate stabilization account in the amount of $90 million, derived from export sales of surplus electric energy.

For fiscal years subsequent to March 31, 1982, B.C. Hydro has been directed to credit to the rate stabilization account annually, an amount based upon revenues derived from export sales of surplus electric energy (exclusive of sales of firm energy under approved export contracts) less direct expenses associated with such sales, including water rentals calculated by reference to the electricity generated to make such export sales, provided the account does not at any time exceed $200 million.

For each of the fiscal years subsequent to March 31, 1982, the Commission has ordered B.C. Hydro to transfer from the rate stabilization account an amount of $60 million, or such lesser amount as will reduce the account balance to nil, to be credited to income in the year, unless otherwise directed.

An analysis of the rate stabilization account is as follows:

	1984	1983
	(in millions)	
Balance at beginning of year	$109	$ 90
Transfer from income (Note 9)	46	79
Transfer to income	(60)	(60)
Adjustment for rate stabilization	(14)	19
Balance at end of year	$ 95	$109

Note 3 Fixed Assets:

	1984					1983
	Fixed Assets in Service			Unfinished Construction	Total	Total
	Original Cost	Accumulated Depreciation	Net Book Value			
	(in millions)					
Electric service						
Generation and storage	$3,077	$ 567	$2,510	$1,852	$4,362	$4,019
Transmission	1,736	283	1,453	319	1,772	1,577
Transformation	1,049	216	833	153	986	950
Distribution	1,151	321	830	—	830	814
Buildings and other	334	113	221	16	237	276
Total electric service	7,347	1,500	5,847	2,340	8,187	7,636
Gas service	448	86	362	35	397	373
Rail service	54	22	32	—	32	29
Common properties	186	52	134	—	134	147
Sundry	11	—	11	—	11	10
Total	$8,046	$1,660	$6,386	$2,375	$8,761	$8,195

The composite depreciation rates for each year in the three-year period ended March 31, 1984 were as follows:

	1984	1983	1982
	%	%	%
Electric	2.88	2.72	2.57
Gas	2.94	2.81	2.88
Rail	3.76	3.56	3.61

Due to a reduction in the projected growth rate in electrical demand, certain development studies, including those relating to the Liard River and the geothermal site at Meager Creek, have been deferred indefinitely. As a consequence, approximately $42 million has been charged to operations and included with depreciation expense for the year ended March 31, 1984.

In November 1983 the Lieutenant Governor in Council ordered that the Peace Site C energy project certificate, which B.C. Hydro had applied for, be refused. This followed the hearing at which the Commission concluded that the certificate should not be issued until an acceptable load forecast demonstrates that the Peace Site C project is required and that it is the best project to meet such requirements. As a result, a provision of approximately $5 million for the costs relating to the hearing period has been charged to operations and included with depreciation expense for the year ended March 31, 1984.

Note 4 Other Assets:

Included in other assets is an amount of $34 million (1983-$15 million) representing payments for gas not taken under a gas supply contract. B.C. Hydro expects to take this amount of gas, without further payment, within the period allowed in the contract.

B.C. Hydro has leased underground gas storage facilities in the State of Washington to provide the gas system with the ability to meet peak demands more economically. This will enable B.C. Hydro to nominate a lower annual minimum obligation and recover the amount of gas not taken, during those years when the gas purchased exceeds the minimum obligation.

Note 5 Long-Term Debt:

	1984	1983
	(in millions)	
Total long-term debt outstanding —		
Payable in Canadian currency	**$4,184**	$4,318
Payable in United States currency (U.S. $3,583; 1983 — U.S. $2,961)	**4,113**	3,331
	8,297	7,649
Less: Sinking funds on deposit with Trustee, Minister of Finance for the Province of British Columbia	**721**	585
	7,576	7,064
Less: Long-term debt payments due within one year —		
Sinking fund instalments	**97**	87
Maturities, less sinking fund	**276**	144
	373	231
	$7,203	$6,833

Had the long-term debt payable in United States currency all been translated to Canadian currency at the foreign exchange rate prevailing at March 31, 1984, the liability would have been increased by approximately $460 million (1983 — $332 million). (Note 1 — Foreign Currency Translation).

B.C. Hydro had 145 series of long-term debt outstanding at March 31, 1984 (1983 — 146). Coupon rates on this long-term debt range from 3¾ % to 16¼ %. The effective interest cost on long-term debt denominated in Canadian dollars outstanding at March 31, 1984 is 9.21% (1983 — 9.17%). For long-term debt denominated in United States dollars at March 31, 1984, the effective interest cost is 12.26% (1983 — 12.09%).

The following long-term debt was issued by B.C. Hydro during the year ended March 31, 1984:

Coupon Rate	Series	Date of Maturity	Principal
12½ %	FN	September 1, 2013	U.S. $250 million
11¾ %	FO	October 13, 1993	U.S. $200 million
12½ %	FP	January 15, 2014	U.S. $200 million

(continued on next page)

Many of the series have annual sinking fund requirements. Total long-term debt maturity payments and sinking fund instalments of the long-term debt outstanding as at March 31, 1984 are as follows:

Year Ending March 31	Principal Amount of Maturities	Estimated Funds Accumulated to Maturity Date in Sinking Funds	Cash Requirements		
			Net Debt Maturities	Sinking Funds	Total
	(in millions)				
1985	$ 299	$ 23	$ 276	$ 97	$ 373
1986	114	39	75	91	166
1987	240	86	154	100	254
1988	420	66	354	97	451
1989	228	56	172	98	270
	1,301	270	1,031	483	1,514
1990 - 1994	1,960	921	1,039	402	1,441
1995 - 1999	818	561	257	317	574
2000 - 2004	1,451	1,451	—	199	199
2005 - 2009	1,102	1,102	—	38	38
2010 -	1,665	1,665	—	2	2
	$8,297	$5,970	$2,327	$1,441	$3,768

Net debt maturities represent the principal amount of maturities less estimated sinking funds at maturity, based on assumed average annual earnings of approximately 11% on existing sinking fund investments and future sinking fund instalments, and estimated discounts on anticipated purchases of bonds subject to annual mandatory redemption.

Certain B.C. Hydro debt held by the Canada Pension Plan Investment Fund contains a provision allowing the Minister of Finance of Canada to redeem the debt in whole or in part, subject to certain restrictions. As at March 31, 1984 the amount of this debt held by the Canada Pension Plan Investment Fund totalled $829 million (1983 — $885 million) net of sinking funds.

Note 6 Guarantee by Province of British Columbia:

The Province of British Columbia has unconditionally guaranteed B.C. Hydro's long-term debt as to principal, premium, if any, and interest.

Note 7 Pension Plans:

Employees of B.C. Hydro are covered under contributory pension plans. It is B.C. Hydro's practice to obtain periodic actuarial valuations of the plans for purposes of determining annual pension costs and funding requirements. Current service costs are provided for and funded when incurred. Past service pension costs and accrued deficits arising from plan amendments, changes in actuarial assumptions and indexing supplements to existing pensioners are provided for and funded over periods and in amounts recommended by the actuary.

A summary actuarial report, dated June 22, 1984, indicated an accrued actuarial deficit in the principal plan as at December 31, 1983 of approximately $44 million, as compared to $75 million as at December 31, 1982. B.C. Hydro is funding this deficit by annual payments of approximately $4 million per annum to March 31, 1997 and $3 million per annum thereafter to March 31, 2000.

The total cost to B.C. Hydro in respect of pension plans, including its share of Canada Pension Plan costs, for the year ended March 31, 1984 was $25 million (1983 — $29 million; 1982 — $35 million), of which $16 million (1983 — $17 million; 1982 — $19 million) was charged to income and the balance capitalized and included in fixed assets.

Note 8 Commitments and Contingencies:

Purchase commitments and contracts of B.C. Hydro for capital projects aggregated approximately $185 million as at March 31, 1984.

The powerplant and concrete dam contractor on the Revelstoke project

delivered in March 1984 a new submission of claims for substantial unanticipated costs. The contractor has submitted claims with respect to the work performed to date and estimated to completion to a maximum amount of $128 million. It is expected that B.C. Hydro will deny liability for the substantial part of all the claims made. Should any amount be paid by B.C. Hydro as a result of the claims, it will be capitalized as part of construction expenditures and included in fixed assets.

Note 9 Export Surplus:

Income from export surplus sales for each year in the three-year period ended March 31, 1984 was determined as follows:

	1984			1983	1982
	Interruptible	Los Angeles Contract	Total		
		(in millions)			
Export surplus revenues	$57	$18	$75	$97	$233
Less: Direct expenses:					
Wheeling charges	2	1	3	4	7
Water rentals	9	—	9	14	30
	11	1	12	18	37
Income before rate stabilization	46	17	63	79	196
Amount transferred to Rate Stabilization Account (Note 2)	(46)	—	(46)	(79)	(90)
Income from export surplus sales	$ —	$17	$17	$ —	$106

Export surplus sales to the Department of Water and Power of the City of Los Angeles and three other municipalities in California were made under a three-year contract (November 1, 1983 to October 31, 1986) signed in January 1984. Provincial approval of the contract has been received and National Energy Board approval is pending. The energy delivered prior to March 31, 1984 in respect of the contract has been exported as interruptible energy under a National Energy Board interruptible export licence.

Note 10 Finance Charges:

Finance charges for each year in the three-year period ended March 31, 1984 comprise the following:

	1984	1983	1982
		(in millions)	
Interest on long-term debt	$872	$800	$685
Amortization of discount and issue expense	7	5	4
Exchange adjustments on long-term debt	12	11	10
Other finance charges	2	2	2
	893	818	701
Less:			
Income from sinking fund investments held by Trustee	70	56	54
Income from temporary investments	19	66	97
	89	122	151
	804	696	550
Less:			
Finance charges capitalized	284	217	142
	$520	$479	$408

The effective rate for finance charges capitalized to unfinished construction during the year ended March 31, 1984 was 12.2% (1983 — 15.8%; 1982 — 15.1%).

Note 11 Extraordinary Item:

In July 1982, the Hat Creek project was deferred indefinitely as a result of rising project costs and reduced rates of growth in projected electrical demand. Project costs, including the costs of demobilization, in the amount of $77 million, have been written off and shown as an extraordinary item in the statement of income and earnings employed in the business for the year ended March 31, 1983.

Note 12 Segment Information:

B.C. Hydro is engaged in the operation of three principal services: generation, transmission and distribution of electricity; distribution of gas; and provision of a rail freight service.

Most expenses are directly attributable to specific services. Common expenses are allocated among the services using appropriate bases established by regular review and analysis. Export surplus expenses include only direct costs, namely wheeling charges and water rentals.

Domestic and other electric service revenues include sales of firm energy under approved export contracts in the amount of $5 million (1983 — $11 million; 1982 — $11 million).

Identifiable assets are those assets that are used in each service's operations. Corporate assets are principally temporary investments and unamortized discount and issue expense on long-term debt.

				Electric		
	Domestic and Other			Export Surplus		
Year ended March 31 *(in millions)*	**1984**	1983	1982	**1984**	1983	1982
Revenues	**$1,155**	$1,075	$891	**$ 75**	$ 97	$233
Expenses:						
Employee compensation	**169**	164	153	**—**	—	—
Materials and services	**79**	84	80	**3**	4	7
Gas purchased for resale	**—**	—	—	**—**	—	—
Water rentals, school taxes and grants	**242**	230	145	**9**	14	30
Depreciation	**224**	159	140	**—**	—	—
Total expenses	**714**	637	518	**12**	18	37
Operating income before finance charges	**441**	438	373	**63**	79	196
Finance charges	**479**	441	377	**—**	—	—
Operating income (loss)	**(38)**	(3)	(4)	**63**	79	196
Adjustment for rate stabilization	**60**	60	—	**(46)**	(79)	(90)
Income (loss) before extraordinary item	**$ 22**	$ 57	$ (4)	**$ 17**	$ —	$106
Identifiable assets						
Corporate assets						
Total assets						
Expenditures on fixed assets						

Total Electric			Gas			Rail			Sundry			Combined		
1984	1983	1982	**1984**	1983	1982	**1984**	1983	1982	**1984**	1983	1982	**1984**	1983	1982
$1,230	$1,172	$1,124	**$361**	$332	$316	**$ 22**	$ 22	$ 27	**$ —**	$ 2	$ 6	**$1,613**	$1,528	$1,473
169	164	153	**34**	35	32	**11**	13	12	**—**	—	—	**214**	212	197
82	88	87	**6**	7	10	**5**	5	6	**—**	—	—	**93**	100	103
—	—	—	**247**	233	219	**—**	—	—	**—**	—	—	**247**	233	219
251	244	175	**9**	8	7	**2**	2	1	**—**	—	—	**262**	254	183
224	159	140	**14**	12	11	**2**	2	2	**—**	—	—	**240**	173	153
726	655	555	**310**	295	279	**20**	22	21	**—**	—	—	**1,056**	972	855
504	517	569	**51**	37	37	**2**	—	6	**—**	2	6	**557**	556	618
479	441	377	**37**	34	27	**3**	3	3	**1**	1	1	**520**	479	408
25	76	192	**14**	3	10	**(1)**	(3)	3	**(1)**	1	5	**37**	77	210
14	(19)	(90)	**—**	—	—	**—**	—	—	**—**	—	—	**14**	(19)	(90)
$ 39	$ 57	$ 102	**$ 14**	$ 3	$ 10	**$ (1)**	$ (3)	$ 3	**$ (1)**	$ 1	$ 5	**$ 51**	$ 58	$ 120
$8,621	$8,062	$7,292	**$523**	$450	$410	**$ 53**	$ 50	$ 52	**$ 12**	$ 14	$ 14	**$9,209**	$8,576	$7,768
												384	334	619
												$9,593	$8,910	$8,387
$ 781	$ 997	$ 990	**$ 33**	$ 37	$ 60	**$ 5**	$ 1	$ 2	**$ 1**	$ 2	$ 1	**$ 820**	$1,037	$1,053

Corporate Organization

as at March 31, 1984

Directors:[1]

Robert W. Bonner, Q.C.
Charles W. Brazier, Q.C.†*
Jack L. DeLair***
Hugh R. Horne*
Charles A. Lasser**
The Honourable Patrick L. McGeer
Archie C. McGougan†*
Harold A. Moffat***
J. Norman Olsen
Charles E. Osterloh**
J. Guy Rose***
The Honourable Brian R.D. Smith, Q.C.
Sandra D. Sutherland†*
John S. Waldie†**
L. Martin Wedepohl***

**Member of the Audit Committee*
***Member of the Budget Committee*
****Member of the Energy Committee*
†Member of the Executive Compensation Committee

Officers:

Robert W. Bonner, Q.C.
Chairman and Chief Executive Officer

J. Norman Olsen
President and Chief Operating Officer

Eric H. Martin
Executive Vice-President, Operations

John P. Sheehan
Executive Vice-President, Administration

William D. Mitchell
Secretary

Tanis M. Stephenson
Associate Secretary

William M. Walker
Chief Engineer

Group Organization:[2]

OFFICE OF THE CHAIRMAN

William D. Mitchell, *Vice-President and General Counsel*

OFFICE OF THE PRESIDENT

Corporate

William A. Best, *Vice-President*
Conrad B. Guelke, *Director of Strategic Planning*

Public Affairs

Douglas K. Coupar, *Vice-President*

OFFICE OF THE EXECUTIVE VICE-PRESIDENT, OPERATIONS

Electrical Operations

Hugh J. Goldie, *Vice-President*

Division Managers:
John R. Carmichael, *North Coast*
Evan T. Davis, *Central Interior*
W. Basil Gale, *Operations Administration*
William D. Gill, *Operations Engineering*
Donald J. McLennan, *South Interior*
Gordon J. Roper, *Vancouver Island*
P. Donald Swoboda, *Lower Mainland*

Engineering

William M. Walker, *Vice-President*

Division Managers:
Donald G. McFarlane, *System Engineering*
James C. Stevens, *Engineering Services*

Engineering Projects

Raymond H. Hunt, *Vice-President*

Division Managers:
Eamon Crowley, *Transmission Projects*
Robert H. Hill, *Station Projects*
Wallace E. Lyle, *Hydro Force Construction*
F. James Patterson, *Hydroelectric Generation Projects*

---

1 *Appointed to the Board of Directors on May 16, 1984, were: Samuel Belzberg, The Honourable Hugh A. Curtis, The Honourable Stephen Rogers, William L. Sauder and L. Allan Williams, Q.C.*

Chester A. Johnson was appointed to the Board on June 21, 1984.

The new Directors join seven continuing Directors, namely Robert W. Bonner, Q.C., The Honourable Patrick L. McGeer, J. Norman Olsen, Charles E. Osterloh, J. Guy Rose, Sandra D. Sutherland and John S. Waldie.

Charles W. Brazier, Q.C., Jack L. DeLair, Hugh R. Horne, Charles A. Lasser, Archie C. McGougan, Harold A. Moffat, The Honourable Brian R.D. Smith, Q.C., and L. Martin Wedepohl completed their terms of office as Directors on May 16, 1984.

2 *A reorganization of B.C. Hydro's senior management took place in April 1984. Changes included the appointments of William A. Best as Executive Vice-President, Business Operations; John P. Sheehan as Executive Vice-President, Finance and Administration; William M. Walker continuing as Vice-President and Chief Engineer; Raymond H. Hunt as Senior Vice-President, Engineering; Ronald E. Avery as Vice-President, Business Development; Hugh J. Goldie as Vice-President, Corporate Planning, and P. Donald Swoboda as Vice-President, Electrical Operations. The positions of Vice-President, Finance, and Vice-President, Personnel, were eliminated.*

Gas Operations and Energy Conservation
Maurice A. Favell, *Vice-President*
Division Managers:
Kenneth S. Henderson, *Gas Transmission and Distribution*
Alistair H. MacPherson, *Gas Engineering*
Timothy J. Newton, *Energy Conservation*

Research and Development
Harry M. Ellis, *Director*

OFFICE OF THE EXECUTIVE VICE-PRESIDENT, ADMINISTRATION
Finance
Ronald E. Avery, *Vice-President*
Division Managers:
David A. Harrison, *Comptroller*
William W. Winnett, *Treasurer*

General Corporate Services
Thomas A. Nordstrom, *Vice-President*
Division Managers:
Jeffrey N. Holmes, *Properties*
Christopher J. Hopkins, *Purchasing and Supply*
Desmond G. McKillop, *General Services*
Robert J. Steele, *Computer and Management Systems*

Personnel
James J. Donnelly, *Vice-President*
Division Managers:
Andrew D. Danyliu, *Human Resource Programs*
Richard H. Downey, *Personnel*
C. Mark Leffler, *Labour Relations*

Internal Audit
S. Edwin Banning, *Manager*

Railway Operations
Gerald I. Stevenson, *Manager*

Corporate Information

Head Office
970 Burrard Street
Vancouver, British Columbia
Canada, V6Z 1Y3

Auditors
Price Waterhouse

Bankers
Canadian Imperial Bank of Commerce

Registrars
Securities issued by B.C. Hydro:

CANADIAN ISSUES:
B.C. Hydro

UNITED STATES ISSUES:
Canadian Imperial Bank of Commerce
Trust Company, New York

Securities issued by the former British Columbia Electric Company Limited:
Montreal Trust Company

Securities issued by the former British Columbia Power Commission:
B.C. Hydro